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WILDLIFE REVIEW

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FISH AND WILDLIFE SERVICE

March 1

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WILDLIFE REVIEW

An abstracting service for wildlife management
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by the Fish and Wildlife Service
United States Department of the Interior

March 1961 Patuxent Wildlife Research Center, Laurel, Maryland No. 101

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CONTENTS

General conservation
Natural resources & climate 2
Soils 2
Conservation education 3
Bibliographies, directories, biography, history 3
Plants
General, ecology, techniques ... 3
Floras, communities, taxonomy .. 4
Forest surveys 4
Wildlife
Biotas, ecology, natural history 4
Effects of chemicals, weather, cars, etc. 5
Parasites & diseases 6
Populations & fluctuations 6
Biometrics 7
Techniques 8
Management & research, general 9
Hunting areas & problems 10
Economic & other values 10
Reports of organizations & reports of harvests 11
Management & ecology of habitats & animals
Wetlands & wildlife 11
Rangeland & wildlife 12
Forestland
Forestry & ecology 12
Management for & damage by wildlife 13
Stripped land & misc. habitats 13
Control of vegetation with herbicides, etc. 14
Mammals
General 15
Faunas & manuals 15
Mammals
Populations, home ranges, communities 16
Parasites & diseases 17
Shrews, moles, bats 17
Rabbits & pikas 19
Rodents
Miscellaneous 22
Rattus & Mus 25
Sciurids 25
Beaver 25
Muskrat & nutria 26
Carnivores
Bears 26
Raccoon, ringtail, coati 27
Mustelids 27
Big game
General 27
Deer (Odocoileus) 29
Marine 30
Other groups 32
Birds
General 32
Morphology, physiology, behavior, migration 33
Manuals, faunas, communities ... 40
Populations & fluctuations 42
Economics, control, mortality .. 43
Parasites & diseases 46
Game birds--general 47
Quail 47
Pheasants 49
Grouse, partridge, etc. 50
Turkey 51
Doves & pigeons 51
Waterfowl 52
Cranes, rails, shorebirds 56
Other birds 57
Reptiles & amphibians 59
Author index 62

Except as indicated, abstracts are by Kenneth J. Chiavetta, editor.

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NATURAL RESOURCES & CLIMATE

Alexander, Harold E. (Ark. Game & Fish Comm., Little Rock.) STREAM VALUES, RECREATIONAL USE AND PRESERVATION. Trans. 25th N. A. Wildl. Conf. p. 192-201. 1960. WR 101: 2

In replies to questionnaires submitted to the conservation departments of 48 states, 42 indicated that they have streams possessing high scenic, recreational, and esthetic values which merit preservation. A list of 148 streams was compiled. All states believed a program to save quality streams was badly needed. Suggested actions included coordination of conservation efforts, protective legislation, education of the public, zoning, easements, criteria to define quality, and "classification of rivers" to define best use. Because of the multiple plans for water management, immediate action is considered essential if even a few of our streams are to be saved in their natural state.--From auth. abst.

Natl. Park Service. OUR FOURTH SHORE / GREAT LAKES SHORELINE RECREATION AREA SURVEY. Natl. Park Serv., USDI. 48 p., illus. 1959 [1960.] WR 101: 2

From summary. Of the 4,786 miles of the over-all shoreline not in public ownership, 426 miles were identified as potential public recreation areas. These were divided among 66 individual areas with 40 in Mich., 8 in N. Y., 7 in Wis., 6 in Ohio, 2 in Minn., and one each in Ill., Ind., and Pa. The 66 individual areas include 5 for possible inclusion in the Natl. Park system, 2 major wildlife areas of possible national significance, 39 areas for state parks, 8 state forest areas, 1 state wildlife area, and 11 areas of local significance. Detailed information on individual areas is included in a separate supplement entitled "Remaining Opportunities." See below.

Natl. Park Service. REMAINING SHORELINE OPPORTUNITIES IN--MINNESOTA, WISCONSIN, ILLINOIS, INDIANA, OHIO, MICHIGAN, PENNSYLVANIA, NEW YORK / A REPORT PREPARED BY THE GREAT LAKES SHORELINE RECREATION AREA SURVEY. Natl. Park Serv., USDI. iii + 191 p., illus. 1959 [1960.] WR 101: 2

This supplement to "Our Fourth Shore" (see above) parallels the Pacific, Atlantic and Gulf Coast Recreation Area Surveys listed in WR 98: 2.

SOILS

Colburn, W. Lee, and others. SOIL SURVEY OF DARLINGTON COUNTY, SOUTH CAROLINA. US Soil Cons. Serv., Ser. 1957, no. 8. i + 89 p., 11 figs. + single-fold maps based on aerial photos and bound in. Oct. 1960. Sold by Supt. Documents. WR 101:2

Eikleberry, Robert W., and others. SOIL SURVEY OF BROWN COUNTY, KANSAS. US Soil Cons. Serv., Ser. 1955, no. 7. i + 32 p., 17 figs. + folded maps based on aerial photos and bound in. Sept. 1960. Sold by Supt. Documents. WR 101: 2

Leighty, Ralph G., and others. SOIL SURVEY OF ORANGE COUNTY, FLORIDA. US Soil Cons. Serv., Ser. 1957, no. 5. i + 63 p., 12 figs. + single-fold maps based on aerial photos and bound in. Sept. 1960. Sold by Supt. Documents. WR 101: 2

Matthews, Earle D., and others. SOIL SURVEY OF FREDERICK COUNTY, MARYLAND. US Soil Cons. Serv., Ser. 1956, no. 15. i + 144 p., 2 figs. + single-fold maps based on aerial photos and bound in. Sept. 1960. Sold by Supt. Documents. WR 101: 2

Murphy, Ralph S., and others. SOIL SURVEY OF CIMARRON COUNTY, OKLAHOMA. US Soil Cons. Serv., Ser. 1956, no. 11. i + 53 p., 21 figs. + folded maps based on aerial photos and bound in. June 1960. Sold by Supt. Documents. WR 101: 2

Ness, A. O., and others. SOIL SURVEY OF MASON COUNTY, WASHINGTON. US Soil Cons. Serv., Ser. 1951, no. 9. ii + 76 p., 5 figs. + single-fold maps based on aerial photos and bound in. Sept. 1960. Sold by Supt. Documents. WR 101: 2

SOILS--Continued

Nunns, Frederick K., and others. SOIL SURVEY OF UPPER FLATHEAD VALLEY AREA, MONTANA. US Soil Cons. Serv., Ser. 1946, no. 4. i + 67 p., 17 figs. + single-fold maps based on aerial photos and bound in. Sept. 1960. Sold by Supt. Documents. WR 101: 3

Porter, H. C., and others. SOIL SURVEY OF LOUDON COUNTY, VIRGINIA. US Soil Cons. Serv., Ser. 1951, no. 8. iii + 118 p., 13 figs. + single-fold maps based on aerial photos and bound in. Sept. 1960. Sold by Supt. Documents. WR 101: 3

Rieger, Samuel, and others. SOIL SURVEY AND VEGETATION OF NORTHEASTERN KODIAK ISLAND AREA, ALASKA. US Soil Cons. Serv., Soil Surv. Ser. 1956, no. 17. i + 46 p., 12 figs. + folded vegetation and soil maps in color. Oct. 1960. Sold by Supt. Documents. WR 101: 3

Sanders, Dupree, and others. SOIL SURVEY OF DAWSON COUNTY, TEXAS. US Soil Cons. Serv., Ser. 1957, no. 6. i + 58 p., 20 figs. + folded maps based on aerial photos and bound in. Aug. 1960. Sold by Supt. Documents. WR 101: 3

Taylor, David C., and others. SOIL SURVEY OF ERIE COUNTY, PENNSYLVANIA. US Soil Cons. Serv., Ser. 1957, no. 9. i + 119 p., 12 figs. + single-fold maps based on aerial photos and bound in. Dec. 1960. Sold by Supt. Documents. WR 101: 3

Ulrich, R., and others. SOIL SURVEY OF THE BERYL-ENTERPRISE AREA, UTAH. US Soil Cons. Serv., Ser. 1952, no. 9. i + 75 p., 8 figs. + single-fold maps based on aerial photos and bound in. Sept. 1960. Sold by Supt. Documents. WR 101: 3

Williard, John E., and others. SOIL SURVEY OF NANCE COUNTY, NEBRASKA. US Soil Cons. Serv., Ser. 1955, no. 9. i + 44 p., 19 figs. + single-fold maps based on aerial surveys and bound in. July 1960. Sold by Supt. Documents. WR 101: 3

CONSERVATION EDUCATION

Office of Information, US F&WS. A SURVEY OF CONSERVATION-EDUCATION NEEDS OF THE U. S. FISH AND WILDLIFE SERVICE. US F&WS Cir. 95. ii + 20 p. Sept. 1960. WR 101: 3

This report is a summary of the findings of a survey made in 1959 to determine the conservation-education needs of the US F&WS. Tabulations are by bureau with a summary of needs for the entire Service.

BIBLIOGRAPHIES, DIRECTORIES, BIOGRAPHY, HISTORY

Brewer, Richard. (Western Mich. U., Kalamazoo.) A BRIEF HISTORY OF ECOLOGY / PART I--PRE-NINETEENTH CENTURY TO 1919. Occas. Pap. C. C. Adams Cent. for Ecol. Studies, W. Mich. U., no. 1. 18 p. 22 Nov. 1960. WR 101: 3

This paper is an attempt to fill the need for a brief survey of the historical development of ecology. The treatment is chronological.

PLANTS--GENERAL, ECOLOGY, TECHNIQUES

Medin, Dean E. PHYSICAL SITE FACTORS INFLUENCING ANNUAL PRODUCTION OF TRUE MOUNTAIN MAHOGANY CERCOCARPUS MONTANUS. Ecology 41(3): 454-460, 3 figs. July 1960. WR 101: 3

Based on a M.S. thesis of similar title reviewed in WR 98: 68.

PLANTS--GENERAL, ECOLOGY, TECHNIQUES--Continued

Ritchie, J. C. (U. Manitoba, Winnipeg.) THE VEGETATION OF NORTHERN MANITOBA. V. ESTABLISHING THE MAJOR ZONATION. Arctic 13(4): 211-229, 11 figs. Dec. 1960. WR 101: 4

The techniques employed in establishing the main boundaries between the zones of vegetation in n. Manitoba are described. The vegetation, physiography and photographic appearance of the zones found in the Canadian Shield and Hudson Bay Lowlands are described. These zones include: tundra, forest-tundra, open coniferous forest, closed coniferous forest, transition type, moss-muskeg type, treeless bog type, and lowland complex.

PLANTS--FLORAS, COMMUNITIES, TAXONOMY

Carter, Jack Lee. THE FLORA OF NORTHWESTERN IOWA. Ph.D. thesis, Iowa State U. 407 p. 1960. [From abst. in Dissertation Abst. 21(6), 1960.] WR 101: 4

"All the available information on the flora of ten northwestern Iowa counties" with information on the occurrence, relative abundance, and habitats of the plants, and a description of the geology, topography, soil types, and drainage of the area.

Lems, Kornelius. (Goucher Coll., Baltimore, Md.) FLORISTIC BOTANY OF THE CANARY ISLANDS / A COMPILATION OF THE GEOGRAPHIC DISTRIBUTION, DISPERSAL TYPES, LIFE FORMS AND LEAF TYPES OF THE SPECIES OF VASCULAR PLANTS. Sarracenia no. 5. p. 1-94, polycopied. Nov. 1960. WR 101: 4

Whittaker, R. H. (Brooklyn Coll., Brooklyn 10, N. Y.) VEGETATION HISTORY OF THE PACIFIC COAST STATES AND THE "CENTRAL" SIGNIFICANCE OF THE KLAMATH REGION. Madroño 16(1): 5-23. Jan. 1961. WR 101: 4

The Klamath Region of nw Calif. and sw Oreg. is "an area of old and geologically complex mountains, supporting a complex vegetation pattern and a diverse flora rich in narrowly endemic species. The region is a floristic and vegetational 'center' for the forests of the western United States."--From summ.

PLANTS--FOREST SURVEYS

Findell, Virgil E., Ray E. Pfeifer, Arthur G. Horn, and Carl H. Tubbs. MICHIGAN'S FOREST RESOURCES. Lake States For. Exp. Sta., Sta. Pap. 82. iv + 46 p., 34 figs. + col. map. Sept. 1960. WR 101: 4

This publication contains the latest available information on the status of forest lands and timber growth. Nearly 20 million of Michigan's 36 million acres are forested. The proportion of forest land ranges from 90% in the Upper Peninsula to 17% in southern Lower Peninsula. Hardwoods occupy more than three-fifths of the forest land.

Sternitzke, Herbert S. ARKANSAS FORESTS. S. For. Exp. Sta. (New Orleans), For. Surv. Rel. 84. iv + 58 p., 13 figs. 1960. WR 101: 4

"The survey...[made in 1958-9]...was designed to provide up-to-date information on the kind, amount, and condition of forest resources; the industries they support; and the possibilities for improving wood production. Comparison with the inventory that was completed in 1951 helps to clarify timber trends."

WILDLIFE--BIOTAS, ECOLOGY, NATURAL HISTORY

Ellis, Derek V. (Fisheries Res. Board Canada, Nanaimo, B. C.) MARINE INFAUNAL BENTHOS IN ARCTIC NORTH AMERICA. Arctic Inst. N. A., Tech. Pap. no. 5. 56 p., 17 figs. + 2 pls. Sept. 1960. Price to members of the Inst., $1.00; to non-members, $2.00. WR 101: 4

With Russian summary. This survey which covers arctic Canada complements published data on the Barents Sea and Greenland. "The marine benthos is eaten by several species of mammals, sea birds, and fish, for example, walrus,

bearded seals, eider ducks, flounders and rock cod, which are either of potential commercial value or of actual economic importance to the native Eskimo. A knowledge of the food supply available to these benthic predators is part of the information required for their efficient management."--From introduction.

Hoffmann, L. (Station Biologique de la Tour de Valat, Le Sambue, Camargue, France.) AN ECOLOGICAL SKETCH OF CAMARGUE. Brit. Birds 51(9): 321-350, 4 figs., 12 pls. Sept. 1960. WR 101: 5

The Camargue is discussed according to habitat type including topography, soil type, plant cover, animal life, and ecological relationships between them. Separate sections are also devoted to the ecology of wintering ducks, heronries, and the influence of cultivation. [A bibliography of a few of the most important works on the geology and geography, botany, invertebrate zoology, ichthyology, and ornithology of the Camargue is given.] [Last in a series of 3 papers. See Nicholson, Ferguson-Lees, and Hollum WR 101: 41 and Valverde below.]--Mary F. Myers.

Valverde, J. A. (Instituto de Aclimatacion Almeria, Spain.) AN ECOLOGICAL SKETCH OF THE COTO DONANA. Brit. Birds 51(1): 1-23, 6 figs., 12 pls. Jan. 1958. WR 101: 5

The ecology of the Coto Donaña is grouped by habitat type. The topography, soil type, plant life, animal life, and predator-prey relationships are described for each zone. [Second of a series of 3 articles. See Nicholson, Ferguson-Lees, and Hollom WR 101: 41 and Hoffmann above.]--Mary F. Myers.

WILDLIFE--EFFECTS OF CHEMICALS, WEATHER, CARS, ETC.

DeWitt, James B., Calvin M. Menzie, Vyto A. Adomaitis, and William L. Reichel. (Patuxent Wildl. Res. Cent., Laurel, Md.) PESTICIDAL RESIDUES IN ANIMAL TISSUES. Trans. 25th N. A. Wildl. Conf. p. 277-285. 1960. WR 101: 5

Tests with penned starlings, rats, pheasants, and ducks indicated that each species differs in sensitivity to the various pesticides. Residues in tissues are proportional to the degree of exposure during area treatment and they are also found in animals shot six or more months after treatment. The presence of more than 20-30 ppm of DDT, 20 ppm of chlordan, and 6-20 ppm of heptachlor epoxide in quail tissues indicated that the birds had ingested lethal dosages of the pesticides.--Vyto Adomaitis.

Dietrich, Joseph A. IS TREE SPRAYING HARMFUL TO BIRDS? Natl. Shade Tree Conf. Proc. 35. p. 81-96, illus. 1959. [From Biol. Abst. 35(20), 1960.] WR 101: 5

Reliable and thoroughly tested chemicals are being shunned as a result of contradictory and needless propaganda. Organizations and individuals condemning the use of pesticides have selected DDT as the target of their opposition in most cases. We have had 13 years experience with DDT spraying in Greenwich, Conn. and without it our elm population would be a thing of the past. After this long use, birds were still found in our city and park elms. We have fish in our parks, lakes, and streams. We have never had any ill effect to our employees who use this material. We have carefully watched the relation between bark beetle sprays and birds and have seen no evidence of the death of any bird. Lower Merion Township Shade Tree Commission aerial-sprayed 7000 acres and had a 90% control and checks up to 8 months later found no measurable damage to beneficial insects, birds, fish, and wildlife.--Karl Dressel.

Emond, G. LA TOXICITÉ DU 2,4-D ET DE SES COMPOSÉS POUR LES ANIMAUX. [THE TOXICITY OF 2,4-D AND ITS COMPOUNDS ON ANIMALS.] Quebec Soc. Prot. Plants Rep. 41: 96-100. 1959. [From Bibliog. Agr. 24(10), 1960.] WR 101: 5

In French.

Gerberg, Eugene J. (Insect Control & Res., Inc., Baltimore, Md.) PESTICIDE REGISTRATION LAWS OF CENTRAL AND SOUTH AMERICA. Agr. Chemicals 15(11): 47-50. Nov. 1960. WR 101: 5

A report of pesticide laws of the 20 countries in Central and South America. Chile, Cuba, Haiti, Honduras, and Panama apparently do not have any pesticide laws.

Giles, Lester A., Jr., and John Livingston. (180 Longwood Ave., Boston 15, Mass.) OIL POLLUTION OF THE SEAS. Trans. 25th N. A. Wildl. Conf. p. 297-303, 1 fig. 1960. WR 101: 6

Paper deals with short history of pollution of the seas by oil and the international conferences held on it so far. Stress is laid on the need for international cooperation in the study of oil effects, methods of handling and dispersing oil once dumped, and public education to the dire need for action.--L. A. Giles.

Willard, William K. (U. Ga., Athens.) AVIAN UPTAKE OF FISSION PRODUCTS FROM AN AREA CONTAMINATED BY LOW-LEVEL ATOMIC WASTES. Science 132(3420): 148-150. 1960. [From Biol. Abst. 35(21), 1960.] WR 101: 6

Birds living on the Oak Ridge White Oak bed, an area contaminated by low-level atomic wastes, revealed a striking seasonal difference in uptake of fission products. Because the omnivorous diet of passerine birds is ecologically comparable to the mixed diet of man, uptake of radionuclides by wild birds provides an assay of amounts to be expected at the trophic level of primary interest to man.--Auth. abst.

WILDLIFE--PARASITES & DISEASES

Drummond, Roger O. (Ent. Res. Div., USDA, Kerrville, Texas.) TICKS / HABITS, BIOLOGY, CONTROL. Pest Control 12(28): 9, 11-12, 14, illus. Dec. 1960. WR 101: 6

Gemmell, M. A. (Otago Med. Sch., Dunedin, New Zealand.) ADVANCES IN KNOWLEDGE ON THE DISTRIBUTION AND IMPORTANCE OF HYDATID DISEASE AS WORLD HEALTH AND ECONOMIC PROBLEMS DURING THE DECADE. Helminth. Abst. 29(4): 355-370. Dec. 1960. WR 101: 6

Review article with 6 pages of references.

Hoerning, B. SOVIET HELMINTHOLOGY. (LITERATURE SURVEY FOR THE YEARS 1946-1953.) Rep. Osteuropa-Inst. Free Univ. Berlin 30. p. 3-135, maps. 1957. [From Biol. Abst. 35(22), 1960.] WR 101: 6

The work includes remarks on textbooks and summaries; clinical observation (including diagnosis and immunity); pathology; epidemiology; systematics; biology; helminthogeography; bibliography; and an index of geographical names and regions with a map.--Author.

WILDLIFE--POPULATIONS & FLUCTUATIONS

Hairston, Nelson G., Frederick E. Smith, and Lawrence B. Slobodkin. (U. Mich., Ann Arbor.) COMMUNITY STRUCTURE, POPULATION CONTROL, AND COMPETITION. Am. Nat. 94(879): 421-425. Nov.-Dec. 1960. WR 101: 6

"Our general conclusions are: (1) Populations of producers, carnivores, and decomposers are limited by their respective resources in the classical density-dependent fashion. (2) Interspecific competition must necessarily exist among the members of each of these three trophic levels. (3) Herbivores are seldom food-limited, appear most often to be predator-limited, and therefore are not likely to compete for common resources."--From summ.

Milstead, William W. (U. Kans. City, Mo.) OBSERVATIONS ON THE ACTIVITIES OF SMALL ANIMALS (REPTILIA AND MAMMALIA) ON A QUADRAT IN SOUTHWEST TEXAS. Am. Midl. Nat. 65(1): 127-138, 1 fig. Jan. 1961. WR 101: 6

During the summer 1957 study, 114 reptiles of 9 spp., mostly lizards, were marked and released and 74 of these were recovered at least once for a total of 230 recoveries. Nineteen mammals of 3 spp. were marked and released, and 7 were recovered for a total of 22 recoveries. It is proposed that the term "home realm" be adopted for all of the area in which an animal is normally active. The term "home range" then becomes restricted to the small, inner area in which an animal is usually active.--From auth. abst.

WILDLIFE--BIOMETRICS

Blackith, R. E. (Imperial Coll. Field Sta., Sunninghill, Ascot, Berks, England.) SOME TAXONOMIC APPLICATIONS OF DISCRIMINATORY AND CANONICAL ANALYSES. Biometrics 16(3): 489-490. Sept. 1960. WR 101: 7

Abstract of paper presented at meetings of the British Region during the session 1959-60.--V. Schultz.

Chapman, D. G., and D. S. Robson. (U. Wash., Seattle.) THE ANALYSIS OF A CATCH CURVE. Biometrics 16(3): 354-368. Sept. 1960. WR 101: 7

The best estimate of the annual survival rate of a stationary population with a geometric age distribution is compared to the so-called "Jackson" estimate and some modifications of Jackson's estimate. Assumptions basic to regression estimates are considered.--V. Schultz.

Cohen, A. Clifford, Jr. (U. Ga., Athens.) AN EXTENSION OF A TRUNCATED POISSON DISTRIBUTION. Biometrics 16(3): 446-450. Sept. 1960. WR 101: 7

Considers a simple two-parameter extension of a truncated Poisson distribution wherein no migration of organisms takes place between sites.--V. Schultz.

Feinleib, Manning. (State U. of N. Y., Albany.) A METHOD OF ANALYZING LOG-NORMALLY DISTRIBUTED SURVIVAL DATA WITH INCOMPLETE FOLLOW-UP. J. Am. Stat. Assn. 55(291): 534-545. Sept. 1960. WR 101: 7

Life table method making allowances for patients lost to observation and for tabulating resulting survival frequencies.--V. Schultz.

Jackson, J. Edward. (Va. Poly. Inst., Blacksburg.) BIBLIOGRAPHY ON SEQUENTIAL ANALYSIS. J. Am. Stat. Assn. 55(291): 561-580. Sept. 1960. WR 101: 7

374 categorized references.--V. Schultz.

Leslie, P. H., and J. C. Gower. (Bur. Anim. Pop., Oxford, England.) THE PROPERTIES OF A STOCHASTIC MODEL FOR THE PREDATOR-PREY TYPE OF INTERACTION BETWEEN TWO SPECIES. Biometrika 47(3-4): 219-234. Dec. 1960. WR 101: 7

Considers some of the properties of a model for the interaction between a predatory species and its prey. Deals more specifically with behaviour of such systems in the region of a stationary state and the chances of random extinction for one or the other of the two species. Considers a limited environment with an ample supply of food for the prey and assuming all prey have equal probability of capture or attack. Also deals with case of only a fraction of the population being exposed to capture or attack.--V. Schultz.

Lloyd, Monte. (Bur. Anim. Pop., Dept. Zool. Field Studies, Oxford, England.) STATISTICAL ANALYSIS OF MARCHANT'S DATA ON BREEDING SUCCESS AND CLUTCH-SIZE. Ibis 102(4): 600-611. Oct. 1960. WR 101: 7

Causes of differences in data presented in Marchant's paper are analysed and clarified in this paper. [See Marchant WR 101: 37.]--Mary F. Myers.

Pachares, James. (Hughes Aircraft Co.) TABLES OF CONFIDENCE LIMITS FOR THE BINOMIAL DISTRIBUTION. J. Am. Stat. Assn. 55(291): 521-533. Sept. 1960. WR 101: 7

Given for n=50 through 100 in intervals of 5 and alpha equal to 0.005, 0.010, 0.025, and 0.050.--V. Schultz.

Skellam, J. G., and M. D. Mountford. (Nature Conservancy, London.) SIMULTANEOUS GROWTH DIFFUSION WITH SPECIAL REFERENCE TO POPULATION DYNAMICS AND ECOLOGICAL GENETICS. Biometrics 16(3): 488-489. Sept. 1960. WR 101: 7

Abstract of paper presented at meetings of the British Region during the session 1959-60.--V. Schultz.

WILDLIFE--BIOMETRICS--Continued

Torii, T. THE STOCHASTIC APPROACH IN FIELD POPULATION ECOLOGY WITH SPECIAL REFERENCE TO FIELD INSECT POPULATIONS. Uèno: Japan Society for the Promotion of Science (Tokyo). 277 p. 1956. 35 shillings. [From long review by R. E. Blackith in Biometrics 16(3), 1960.] WR 101: 8

"The book, whilst both prolix and inelegant, contains some unusual biometrical techniques; in particular, it revives Student's idea of computing the correlation between the numbers of organisms in a quadrat and those in contiguous quadrats, to examine the small-scale heterogeneity of the population. The idea is then expanded so that this structural autocorrelation for the whole area reflects the type of distribution to which the population conforms.... There is a useful distinction between non-random distributions arising from direct interactions between insects and those imposed by the heterogeneity of their environment.... Fluctuations of insect activity in time are assessed by means of careful experiments, sophisticated multivariate analyses, and detailed interpretation.... An ecologist, with the patience to winnow the grain from the chaff, may be stimulated by this book, which deals with problems that tend to be left to the biologist by the statistician and conversely."--Courtesy/ V. Schultz.

WILDLIFE--TECHNIQUES

Avery, Gene. (Mich. State U., East Lansing.) IDENTIFYING SOUTHERN FOREST TYPES ON AERIAL PHOTOGRAPHS. SE For. Exp. Sta., Sta. Pap. no. 112. 12 p., 9 figs. Sept. 1960. WR 101: 8

"This booklet has been prepared to assist photo interpreters in recognizing broad forest types on aerial photographs of the South, and to illustrate primary differences between panchromatic and infrared photography from the standpoint of timber type-mapping." A conversion table of photo and map scales as representative fractions is included.

Buechner, H. K., A. M. Harthoorn, and John A. Lock. (Wash. State U., Pullman.) THE IMMOBILIZATION OF AFRICAN ANIMALS IN THE FIELD, WITH SPECIAL REFERENCE TO THEIR TRANSFER TO OTHER AREAS (U. S. TRANSLOCATION). Proc. Zool. Soc. London 135(2): 261-264 + 8 figs. on 4 pls. Oct. 1960. WR 101: 8

Abstract: The need for urgent measures to preserve African game for study and assessment of ecological importance is briefly discussed. The use of paralyzing drugs for the capture of these animals is described. The applicability of the method for the transfer of animals threatened by poaching, farming and other agrarian activities is discussed, together with problems associated with removed populations.

Buechner, Helmut, A. M. Harthoorn, and John A. Lock. (Wash. State U., Pullman.) IMMOBILIZING UGANDA KOB WITH SUCCINYLCHOLINE CHLORIDE. Can. J. Comp. Med. & Vet. Sci. 24(11): 317-325. Nov. 1960. WR 101: 8

"In conclusion, the automatic projectile syringe and Cap-Chur gun functioned satisfactorily for immobilizing Kob for the purpose of tagging in an investigation of territorial behavior. In comparison to nicotine alkaloids, succinylcholine chloride was far superior as a paralyzing drug."

Buechner, Helmut K., A. M. Harthoorn, and John A. Lock. (Wash. State U., Pullman.) RECENT ADVANCES IN FIELD IMMOBILIZATION OF LARGE MAMMALS WITH DRUGS. Trans. 25th N. A. Wildl. Conf. p. 415-422. 1960. WR 101: 8

Recent studies have established the practicability of field immobilization of large mammals with drugs in N. A. and Africa. Immobilization doses of succinylcholine chloride are given for eight African mammals. Applications of the technique in ecologic investigations are discussed.--H. K. Buechner.

Conference of Biological Editors, Committee on Form and Style. STYLE MANUAL FOR BIOLOGICAL JOURNALS. Am. Inst. Biol. Sci. 92 p., 4 figs. 1960. Available at $3.00 from American Institute of Biological Sciences, 2000 P Street, NW, Washington 6, D. C. WR 101: 9

"This style manual is designed for research workers preparing manuscripts for publication in biological journals, and for students and other prospective authors. Style is interpreted broadly to mean forms of expression in scholarly writing, and the general technical requirements of journals, such as details for typing manuscripts, standard abbreviations, and citation of references." More than 76 journals have adopted this manual, in whole or in part. Included are The Auk, Biological Abstracts, Copeia, Ecological Monographs, Ecology, Journal of Mammalogy, Journal of Wildlife Management, Wildlife Disease, The Wilson Bulletin, and about 20 others regularly covered by Wildlife Review. Most writing biologists will find that this handy-sized manual answers the majority of the questions that are posed in the preparation of manuscripts. They will probably agree that pages 1 to 8 should be required reading for anyone planning to write a technical paper.

Gilbert, Douglas L. (Colo. State U., Fort Collins.) SUCCESSES, PITFALLS, AND TECHNIQUES IN WILDLIFE TELEVISION. Trans. 25th N. A. Wildl. Conf. p. 444-458. 1960. WR 101: 9

Findings reported were the result of experience gained in conducting a 15-minute, weekly, TV program for 5 years. The problems and techniques of a wildlife TV program are outlined and 67 suggested programs are listed.--From summ.

Kinsinger, Floyd E., Richard E. Eckert, and Pat O. Currie. (Nev. Agr. Exp. Sta., Reno.) A COMPARISON OF THE LINE-INTERCEPTION, VARIABLE-PLOT AND LOOP METHODS AS USED TO MEASURE SHRUB-CROWN COVER. J. Range Mgt. 13(1): 17-21, 4 figs. Jan. 1960. WR 101: 9

"Three methods of estimating shrub-crown-cover were compared by 3 observers in 4 locations in nw. Nev. The line-interception method was the most accurate ...when compared with 'true cover' although a large sample is needed for the estimate of cover to be reliable."

WILDLIFE--MANAGEMENT & RESEARCH, GENERAL

Darling, F. Fraser. (Cons. Found., N. Y., N. Y.) WILDLIFE HUSBANDRY IN AFRICA. Sci. Am. 203(5): 123-128, 130, 133, 134, illus. Nov. 1960. WR 101: 9

"The thesis of this article...[is] that only under the natural communities of game animals can a high biological capture and turnover of solar energy be maintained. To exchange the wide spectrum of 20 to 30 hoofed animals living in delicate adjustment to their habitat, for...three ungulates exotic to Africa--cattle, sheep and goats--is to throw away a bountiful resource and a marvelous ordering of nature. Immense areas of the plateau and volcanic soils of Africa south of the Sahara are quite unsuited to permanent agriculture. On [these] lands that will not withstand pastoralism or sustained agriculture... wild game represents a natural resource of great value in providing the much-needed protein element in the African diet." Game management techniques being developed include butchering and meat preparation techniques which are essential to the wise use of wildlife resources.

Grizzell, Roy A., Jr. (SCS, Decatur, Ga.) FISH AND WILDLIFE MANAGEMENT ON WATERSHED PROJECTS. Trans. 25th N. A. Wildl. Conf. p. 186-192. 1960. WR 101: 9

Techniques are discussed involving the use of a multiple purpose drawdown slot in floodwater retarding reservoirs of Ga. The drawdown slot provides for control of undesirable weeds, waterfowl management, fish management, mosquito control, and downstream water supplies. Fish management programs for both warm and cold water species in watershed reservoirs are discussed. Waterfowl management projects both within and below structures are described. As of Dec. 1, 1959 the following measures have been completed in watershed projects in the U. S.: 1,114 each floodwater retarding structures; 79,198 each farm ponds; 287,773 acres wildlife area improvement; and 334,114 acres critical area vegetation.--From auth. abst.

Irving, Frank Dunham. A STUDY OF THE RELATIONSHIP BETWEEN PROGRAM AND ORGANIZATION IN THE ADMINISTRATION OF FOREST AND WILDLIFE RESOURCES BY THE STATE OF MINNESOTA. Ph.D. thesis, U. Minn. 348 p. 1960. [From Dissertation Abst. 21(4), 1960.] WR 101: 10

McKinley, Daniel. A WILDLIFE CHRONOLOGY FOR MISSOURI. M.A. thesis, U. Mo. 239 p. 1957. WR 101: 10

[Two parts of this thesis formed a basis of a U. Mo. Bulletin entitled "A chronology and bibliography of wildlife in Missouri" (see WR 100: 13). Portions of the third part--reports on extirpated and endangered species of animals--have appeared in a series of articles (see WR 100: 39, 44, and 72).]--Courtesy/ Thomas S. Baskett.

Milton, O. BURMA WILDLIFE SURVEY; REPORT ON THE SHWE U DAUNG RESERVE, JULY-AUGUST 1959. Burmese For. 9(2): 88-93. Dec. 1959. [From Bibliog. Agr. 24(2), 1960.] WR 101: 10

"With reference to management."

WILDLIFE--HUNTING AREAS & PROBLEMS

Cain, Stanley A. (Mich. Cons. Comm., Lansing.) WILDLIFE MANAGEMENT AND THE CUSTOMER. Trans. 25th N. A. Wildl. Conf. p. 472-481. 1960. WR 101: 10

It is argued that public agencies with responsibilities in the natural resources field should carry on research on the public with the same intensity and level of scientific objectivity that they do in research on the natural resources which they manage. If the motivations and objectives sought by the public in fishing, hunting, use of parks, wildlands, and other resources; and if trends in types of use and numbers of users are understood, agencies have a better chance to apply scientific management to resources, and better serve the public in the long run. The point is illustrated by a few cases recently considered by the Mich. Cons. Comm.--Author.

Hay, Keith G. (Colo. Dept. Game & Fish, Denver.) AN EVALUATION OF COLORADO'S ACCESS PROBLEMS. Trans. 25th N. A. Wildl. Conf. p. 364-377. 1960. WR 101: 10

This paper analyzes the results of a Colo. Legislative Committee's investigation of the denial of free public access to the state's public lands. Field surveys and data compilations were made by the Colo. Game and Fish Dept. One national and 6 statewide surveys were made. Access to 1,462,720 acres of public land was blocked by a minimum of 236 landowners. This amounted to 12% of all federal lands judged good for hunting and fishing. Percentages ran from 0.34 in one county to as high as 98.1 in another. Access is denied to 522 miles of "good" trout streams and 28 lakes on federal land due to posting on private land. Eighty-seven percent of the landowners refused to grant or sell right-of-ways. Surveys concerned blocked areas, recreation quality, hunting, game damage, fishing, landowner, and nation-wide access information. In addition to survey results, the paper defines the problem and its causes and explains and illustrates the techniques used in its evaluation. The difficulties encountered in the investigation are stated as well as recommendations for a solution.--From auth. abst.

WILDLIFE--ECONOMIC & OTHER VALUES

Ball, Walter S. (Calif. Dept. Agr., Sacramento.) DISTRIBUTION AND UNDESIRABLE CHARACTERISTICS OF CERTAIN WILD BIRDS AND ANIMALS BARRED FROM IMPORTATION OR RESTRICTED IN IMPORTATION INTO THE STATE OF CALIFORNIA. Calif. Dept. Agr. Bul. 49(3): 177-185, 28 figs. July-Sept. 1960. WR 101: 10

"This information is intended to supplement the descriptions in the Department of Fish and Game Publication by informing enforcement personnel of the reasons why the species listed in the act and regulations [State of Calif., Div. 3, Chapter 2, Art. 1, 2, 3 of the Fish and Game Code] are either barred or restricted." Sketches of most of the wildlife forms are included.

Floyd, Jim. (Fla. Game & Fresh Water Fish Comm.) CROP DAMAGE BY DEER AND BEAR / SUGGESTIONS FOR CONTROL. Fla. Wildl. 14(5): 18-21, illus. Nov. 1960. WR 101: 11

Article reviews for laymen techniques for prevention of deer and bear damage in Fla. The approach is good, ideas expensive but helpful, expectations a little optimistic. Chief contribution--a bear-proof platform 8 feet off the ground for protecting beehives. Repellents and outrigger electric fence recommended against deer.--James Lindzey.

Wells, Oris V. (USDA, Wash., D. C.) THE ECONOMIC VALUES OF CONSERVATION. Trans. 25th N. A. Wildl. Conf. p. 78-82. 1960. WR 101: 11

Economists are concerned with problems of ecological balance, with conservation as insurance and, increasingly, with the conservation of space itself. An advancing economy destroys original ecological balances and leads to shortages unless new balances are reached--balances which approximate the maximum sustained yield from the economy's natural resources within a stable economic and cultural environment. To do this, we must reconcile short-run vs. long-run interests as well as interests of particular individuals vs. the much wider public interest.--Author.

WILDLIFE--REPORTS OF ORGANIZATIONS & REPORTS OF HARVESTS

Arizona. [ANNUAL REPORT, 1959-1960.] Ariz. Game & Fish Dept., Wildl. Views 8(1): 34 p., illus. + 2 pls. Jan. 1961. WR 101: 11

Pages 2-9 summarize findings of the small game, waterfowl, statewide development and maintenance, and research projects of the game management section.

Burgdorfer, Willy, and Carl M. Eklund. (Rocky Mtn. Lab., Hamilton, Mont.) COLORADO TICK FEVER. I. FURTHER ECOLOGICAL STUDIES IN WESTERN MONTANA. J. Infect. Dis. 107(3): 379-383. Nov.-Dec. 1960. WR 101: 11

Of 54 golden-mantled ground squirrels tested, 26 (48%) were infected with Colo. tick fever virus. Isolation of Colo. tick fever virus could not be accomplished from ticks or rodents from the area in which golden-mantled ground squirrels were absent.--From summ.

Burgdorfer, Willy. (Rocky Mtn. Lab., Hamilton, Mont.) COLORADO TICK FEVER. II. THE BEHAVIOR OF COLORADO TICK FEVER VIRUS IN RODENTS. J. Infect. Dis. 107 (3): 384-388, 2 figs. Nov.-Dec. 1960. WR 101: 11

Citellus columbianus columbianus, C. lateralis tescorum, Eutamias amoenus, and Peromyscus maniculatus responded to the virus of Colo. tick fever with long lasting virenia with high titers when they were injected with infectious mouse brain suspension or when fed upon by infected Dermocentor andersoni.--From summ.

West Virginia. [ANNUAL REPORT, CONSERVATION COMMISSION, FISCAL YEAR 1959-60.] W. Va. Cons. 24(10): 1-40, illus. Dec. 1960. WR 101: 11

Research and development work in game management is summarized on the first 10 pages of this report. Included are reports on forest game research, white-tailed deer investigations, evaluation of farm game habitat development, migratory bird investigations, district game management, and habitat development on the management areas.

WETLANDS & WILDLIFE

Miller, A. W., and Philip H. Arend. HOW TO GROW WATERGRASS FOR DUCKS IN CALIFORNIA. Calif. Dept. Fish & Game, Game Mgt. Leafl. no. 1. 16 p., illus. Dec. 1960. WR 101: 11

The management of Echinochloa crusgalli for waterfowl in California.

Stoddard, Charles H. (Resources for the Future, Wash., D. C.) WILD RICE PRODUCTION FROM NEW WETLANDS. Trans. 25th N. A. Wildl. Conf. p. 144-153. 1960. WR 101: 12

Wild rice (Zizania aquatica) which is widely distributed in shallow (less than 3 feet) waters over much of the eastern United States, attains stands of sufficient density and grain size for commercial use only in the northern parts of Wis. and Minn. Until recently, it has never been cultivated. Experience since 1955 on artificially flooded marshes indicates that new stands can be established where water and soil conditions are similar to those present in natural wild rice lakes. The cultivated crop is still subject to the natural hazards and lack of controls (except water level) that are present in wild stands. Waterfowl and other forms of wildlife readily adapt themselves to newly created impoundments for growing wild rice without damage to the crop or seed source. But because wild rice marshes are found in the acid forest soil areas to the northeast of the prime prairie pothole waterfowl breeding grounds, special management measures are needed to produce optimum habitat. Experimental management measures are under way on this phase of new wetland development. Cultivation of wild rice on artificially flooded marshes could provide an economic incentive for expanding wetland areas suitable for waterfowl, game fish and furbearers. Extensive development will be dependent upon some important basic research.--From auth. abst.

RANGELAND & WILDLIFE

McGinnies, William J. (Agr. Res. Serv., Ft. Collins, Colo.) EFFECT OF MIMA-TYPE MICRORELIEF ON HERBAGE PRODUCTION OF FIVE SEEDED GRASSES IN WESTERN COLORADO. J. Range Mgt. 13(5): 231-234, 2 figs. Sept. 1960. WR 101: 12

"Present evidence tends to favor the formation of the mounds by rodents in Colorado and adjacent areas.... It is suggested that the higher yields on top of the mounds result from a combination of better stands, more nitrogen, and a greater soil volume available for water storage."--V. B. Scheffer.

Medin, Dean E. (412 S. Loomis, Ft. Collins, Colo.) REFERENCES ON METHODS OF MEASURING PRODUCTION AND UTILIZATION OF RANGE AND PASTURE FORAGE / A SELECTED ANNOTATED LIST. Colo. Dept. Game & Fish, Game Mgt. Div., Tech. Bul. no. 6. iii + 43 p. June 1960. WR 101: 12

Emphasis is given to recent N. A. literature, although many valuable foreign references are included. Classification of the reference is under two headings: Production and Utilization.

Mitchell, George J., and Robert G. H. Cormack. (Dept. Lands & For., Edmonton, Alberta, Canada.) AN EVALUATION OF BIG GAME WINTER RANGE IN SOUTH-WESTERN ALBERTA. J. Range Mgt. 13(5): 235-239, 2 figs. Sept. 1960. WR 101: 12

"The study consisted essentially of the determination of the density and composition of range grasses and forbs on heavily utilized big game winter ranges and the evaluation of these ranges in terms of their climax status."

FORESTLAND--FORESTRY & ECOLOGY

Hsia, S. P. [ON THE CHANGING TENDENCIES OF THE RODENT POPULATION IN THE RECENT CUT-OVER LAND AT DAILING, NORTHEAST CHINA.] Acta Zool. Sinica 10(4): 431-437, illus. 1958. [From Biol. Abst. 35(23), 1960.] WR 101: 12

In Chinese with English summary. Logging completely denudes the landscape. This environmental change subsequently changes animal populations, both in species composition and in number, thus affecting the recovery of plants. During the present 3 year study Sciurus vulgaris disappeared, Eutamias sibiricus diminished in quantity and the non-forest form, Apodemus agrarius appeared in the new faunal composition. The dominant species, Apodemus speciosus and Clethrionomys rufocanus, show a tendency to increase in numbers while Clethrionomys rutilus decreases. The rodent populations in cut-over land have greater seasonal quantitative changes than those in the forest.--Auth. summ.

FORESTLAND--MANAGEMENT FOR & DAMAGE BY WILDLIFE

de Fremery, R. F. MAN BETWEEN FOREST AND WILDLIFE. Nederlands Bosbouw Tijdschr. 32(1): 21-23. Jan. 1960. [From Bibliog. Agr. 24(10), 1960.] WR 101: 13

"In Dutch. Includes forest damage."

Ehrenreich, John H., and Robert F. Buttery. (Agr. Res. Serv., Columbia, Mo.) INCREASING FORAGE ON OZARK WOODED RANGE. USDA, For. Serv., Cent. States For. Exp. Sta., Tech. Pap. 177. 10 p., illus. 1960. WR 101: 13

Abstract: Experiments in the Missouri Ozarks show that forage production on wooded rangeland can be increased by eliminating woody plants (preferably with herbicides) to reduce competition, artificial seeding to improve composition, and fertilizing to increase growth.

Ripley, Thomas H., and Robert A. Campbell. (SE For. Exp. Sta., Asheville, N. C.) BROWSING AND STAND REGENERATION IN CLEAR- AND SELECTIVELY-CUT HARDWOODS. Trans. 25th N. A. Wildl. Conf. p. 407-415, 1 fig. 1960. WR 101: 13

Two tracts of typical mountain hardwoods supporting a relatively high deer population on the Pisgah Natl. Forest were clear- and selectively-cut in 1949 to observe browse production-utilization and regeneration of seedlings and coppice growth. Early appraisals (1951) indicated that the total number of seedlings and sprouts on the clear-cut area was approximately twice that of the selectively-cut area (24,656 vs. 13,607). Conversely, less browse appeared to be utilized in the clear-cut area. In 1959, on the clear-cut area the stocking of commercially valuable seedlings and single-stem sprouts was definitely higher than that in the selectively-cut area (490 and 149 stems, respectively). Yellow-poplar, a favored browse species, was strikingly more abundant in the clear-cut area than the selectively-cut area (190 and 43 stems). Composition also differed significantly in the regenerating stands--in the main, favoring the clear-cut area. Moderate browsing was evident in the clear-cut area, but the selectively-cut area appeared to be severely used. All evidence shows that more browse was produced than was consumed on the clear-cut area. The large size of the treated area (70 acres) and thrift of the coppice regeneration probably contributed to treatment success. Results to date indicate that clear cutting in blocks may enhance both deer and timber crops in the Southern Appalachians.--From auth. abst.

STRIPPED LAND & MISCELLANEOUS HABITATS

Bowden, Kenneth L. (U. Mich., Ann Arbor.) A BIBLIOGRAPHY OF STRIP-MINE RECLAMATION, 1953-1960. Dept. Cons., U. Mich. 13 p. 30 Jan. 1961. WR 101: 13

"The purpose of this paper is to provide an up-to-date list of references that were omitted in Linstrom's work [see WR 76: 3] or published after his bibliography was issued." A listing of 152 items. A limited number of copies have been prepared for free distribution and copies may be obtained by writing: Secretary, Dept. Conservation, School of Natural Resources, University of Michigan, Ann Arbor, Mich.

Hart, George, and William R. Byrnes. (NE For. Exp. Sta., Laconia, N. H.) TREES FOR STRIP-MINED LANDS. NE For. Exp. Sta., Sta. Pap. no. 136. 36 p. + 23 figs. 1960. WR 101: 13

A report on the 10-year survival and growth of trees planted on coal-stripped lands of Pa. Hybrid poplar, black locust, red oak, Japanese larch, and Banks pine exhibited the best survival and growth. Arrow-wood, silky dogwood, and hazelnut had good survival and patches or strips of these species are recommended for food and cover plantings for small game and to aid in holding the soil.--From summ.

CONTROL OF VEGETATION WITH HERBICIDES ETC.

Arner, Dale Howard. (399 Birch St., Selma, Ala.) EFFECTS OF RIGHTS OF WAY TECHNIQUES ON VEGETATION. Trans. 25th N. A. Wildl. Conf. p. 378-386. 1960. WR 101: 14

Research was conducted in Md. and Ala. during a twelve year period on the effects of utility line rights of way techniques on vegetation. Field observations revealed that the dominant plant communities on rights of way which were maintained by herbicide spraying were of relatively poor game food value during critical periods of the year. In an attempt to find a practical and economical maintenance technique which would retard the invasion of undesirable woody plants and produce nutritious game food plants, the following were tried: (1) Bulldozing and seeding with various seed mixtures, (2) use of cultivator and heavy duty brush mower with seed and fertilizer, (3) use of pelleted and unpelleted seeds on areas previously sprayed with herbicides, and (4) use of controlled burning, fertilizer, and seed. More nutritious wildlife food can be produced and a more economical reduction of woody plants can be obtained through the use of mechanical equipment (bulldozer and cultivator) or controlled burning, when these treatments are combined with the application of seed and fertilizer, than any other technique now in use.--From auth. abst.

Berntsen, Carl M. (Bend Res. Cent., Bend, Oreg.) CHEMICAL CONTROL OF BIGLEAF MAPLE TREES AND STUMP SPROUTS. Pac. NW For. Range Exp. Sta., Res. Note no. 192. p. 1-9, 4 figs. Oct. 1960. WR 101: 14

For the control of large or mature trees, a basal spray of 2-(2,4,5-TP) ester in an oil carrier is recommended. Basal spray proved more effective than frill applications. For the control of stump sprouting, freshly cut stumps should be sprayed with ester forms of 2-(2,4,5-TP) in oil or water or the ester form of 2,4,5-T in oil. Additions of bentonite, a thickener, and pyrrolidone, a penetrant, did not increase the effectiveness of spray solutions.--From summ.

Peevy, Fred A. (S. For. Exp. Sta., Alexandria, La.) CONTROL OF BLACKJACK OAK BY BASAL SPRAYING WITH 2,4,5-T. Weeds 9(1): 50-53, 1 fig. Jan. 1961. WR 101: 14

"Eight pounds ahg of the propylene glycol butyl ether ester of 2,4,5-T in 100 gal of diesel oil was applied as a basal stem spray in three volumes to each of three band widths during April, July, October, and February.... Sixteen pounds of 2,4,5-T ester per 100 gal of oil was applied at the rate of 32 ml per inch of stem diameter as a standard treatment.... The best results were obtained from February treatments, and the second best when applied in April, with poorer results in July and October. With sufficient rates good results were obtained at all dates of treatment."--From summ.

Van Etten, Robert C. (US F&WS, Trenton, N. J.) ECOLOGICAL CHANGES IN SHARP-TAILED GROUSE HABITAT RESULTING FROM AN AERIAL APPLICATION OF 2,4-D. Mich. Dept. Cons., Rep. no. 2256. 6 p. 30 Sept. 1959. WR 101: 14

"Spraying a 300-acre area in Michigan's Upper Peninsula from the air with 2,4-D to improve sharp-tailed grouse habitat produced marked ecological changes. Stem counts on a series of permanent sample plots for 3 growing seasons, and general observations, provided the basis for this conclusion. Nearly all the original stocking of deciduous trees, largely aspen and willow, died, producing an excellent grouse opening. The initial stocking rate was not changed by the treatment, but remained at about 2,000 stems per acre due to increased reproduction. The amount of opening increased materially because the replaced trees were smaller. Bog birch was the only woody species completely controlled. The spray injured conifers very little. This may create a problem as a result of increased growth resulting from elimination of competition from deciduous trees." --From summ.

Van Etten, Robert C. (US F&WS, Trenton, N. J.) EFFECTIVENESS OF THE HERBICIDES SILVEX AND PBA IN CONTROLLING DECIDUOUS TREES AND SHRUBS. Mich. Dept. Cons., Rep. no. 2258. 3 p. 15 Sept. 1959. WR 101: 15

"Silvex produced a better kill of sugar maple and most other woody species than PBA. The best results were at the higher concentrations--4 pounds of PBA and 8 pounds of silvex per acre. Apparently 1 pound per acre of silvex was too light to give the desired kill. Regeneration in most species was prolific, regardless of concentration. Juneberry, a good wildlife food plant, withstood mixtures of up to 4 pounds per acre of silvex.... PBA in concentrations up to 8 pounds per acre, will not control sugar maple. Silvex can handle as well, if not better, all other species eliminated by PBA. Little reproduction occurred after the lower concentrations of PBA, but probably this resulted from light injury rather than a kill."--From conclusions.

Van Etten, Robert C., and Ivan Thomson. (US F&WS, Trenton, N. J.) THE VALUE OF SILVEX IN CREATING OPENINGS IN MAPLE-ASPEN STANDS. Mich. Dept. Cons., Rep. no. 2257. 7 p. 15 Sept. 1959. WR 101: 15

"Aerially spraying 2.3 pounds per acre of silvex on a 24-acre strip of mixed aspen and maple to improve ruffed grouse habitat created some openings in the canopy. It failed to kill most of the dominant aspen and maple, and encouraged sprouting of the aspen. The spray effectively killed above ground portions of willow, hazel, and most other shrubs, although most of these plants were regenerating prolifically from the roots 2 years after application. The presence of over 7,200 stems per acre 2 years later, including 4,700 aspen, largely reproduction, indicates that the habitat improvement will be of limited duration without additional herbiciding." Recommendations include a second aerial application of silvex and an increase to 4 pounds per acre in future applications.--From summ.

Wiersema, P. [WEEDS ALONG THE WATERWAYS.] Landbouwmechanisatie 11(4): 259, 261, 263. Apr. 1960. [From Bibliog. Agr. 24(10), 1960.] WR 101: 15

"In Dutch. Control."

MAMMALS--GENERAL

Lord, Rexford D., Jr. (Ill. Nat. Hist. Surv., Urbana.) LITTER SIZE AND LATITUDE IN NORTH AMERICAN MAMMALS. Am. Midl. Nat. 64(2): 488-499, 2 figs. Oct. 1960. WR 101: 15

Summary: Analysis of the data concerning litter size in relation to latitude in North American mammals has shown statistically significant positive correlation for six groups of closely related non-hibernating prey species. Two groups of hibernating and fossorial prey species and the predators, with the possible exception of the foxes, showed no relation between litter size and latitude. Possibly the relation reported by other workers between mortality and reproduction is, at least in part, dependent on an inverse relationship between density of breeding adults and litter size. Also the severity of the winter weather in the higher latitudes has probably been a selective force for larger litters.

MAMMALS--FAUNAS AND MANUALS

Connor, Paul F. THE SMALL MAMMALS OF OTSEGO AND SCHOHARIE COUNTIES, NEW YORK. N. Y. State Mus. & Sci. Serv. Bul. no. 382. 84 p. + 15 figs. July 1960. WR 101: 15

Based on trapping in every month, June 1956 to Apr. 1957 in Otsego County and from May 1957 to Sept. 1958 in Schoharie County. This publication contains a description of the region, a list of mammals for the 2 counties, individual species accounts of the small mammals, an appendix on fleas collected, and a 4-page reference list. Of the 49 species known for the area, 39 were collected and 5 others were recorded. Numbers taken ranged from one hoary bat to 948 short-tailed shrews. The N. Y. Health Dept. found no instance of rabies in the 1160 brains of 18 spp. examined. Most of the paper is comprised of careful, original notes on 32 spp. mostly considered under the following headings: specimens taken, distribution and habitat, food habits, reproduction, measurements, and remarks. The list of fleas collected is classified by host.--Don Hayne.

Lange, Kenneth I. (3168 18th St., NW, Wash. 10, D. C.) MAMMALS OF THE SANTA CATALINA MOUNTAINS, ARIZONA. Am. Midl. Nat. 64(2): 436-458. Oct. 1960. WR 101: 16

Records for each species and subspecies arranged by elevation. In addition to the 73 known forms there is a list of 19 hypothetical or extinct species for this section of Ariz.

Meester, Deur J. (Transvaalse Mus., Pretoria, S. Africa.) 'N SOOGDIER-OPNAME VAN DIE S. A. LOMBARD-NATUURRESERVAAT (1954). [A MAMMAL SURVEY OF THE S. A. LOMBARD NATURE RESERVE (1954).] Fauna en Flora 6: 44-57, illus. 1955 [1956-57]. [From Biol. Abst. 36(1), 1961.] WR 101: 16

[In Afrikaans] with English summary.

Smith, Edward Ray, John B. Funderburg, Jr., and Thomas L. Quay. (Soil Cons. Serv., Raleigh, N. C.) A CHECKLIST OF NORTH CAROLINA MAMMALS. N. C. Wildl. Res. Comm. 19 p. Dec. 1960. WR 101: 16

A list of the 96 forms of mammals now living or recently extinct in N. C.--annotated as to distribution, relative abundance, and general occurrence of each.

Villa R., Bernardo, and Francisco Biagi F. CLAVE PARA FAMILIAS DE MAMIFEROS MEXICANOS. [KEY TO FAMILIES OF MEXICAN MAMMALS.] Acta Zool. Mexicana 3(5/6): 1-8, illus. 1959. [From Biol. Abst. 35(22), 1960.] WR 101: 1

In Spanish.

MAMMALS--POPULATIONS, HOME RANGES, COMMUNITIES

Andrzejewski, R., K. Petrusewicz, and W. Walkowa. (Zaklad Ekol., PAN, Poland.) PRELIMINARY REPORT ON RESULTS OBTAINED WITH A LIVING TRAP IN A CONFINED POPULATION OF MICE. Bul. Acad. Polonaise Sci. Ser. Sci. Biol. 7(9): 367-370. 1959. [From Biol. Abst. 35(21), 1960.] WR 101: 16

Three different populations of white mice were trapped repeatedly in live traps. Of the females, 90% or more were trapped in each population, and of the males 81, 48, and 79%, respectively. On the assumption of a Bernoulli binomial distribution, with the probability of each individual =1/N, no trap-proneness appeared for females, whereas males indicated a tendency to be trapped. Modified Calhoun "dominant-submissive" (DS) scores, correlated with the value for "trap-proneness," (C), suggest that dominants are more liable to be trapped than males submissive in the social hierarchy.--MDS.

Caldwell, Larry Derl. AN INVESTIGATION OF COMPETITION IN NATURAL POPULATIONS OF MICE. Ph.D. thesis, U. Ga. 54 p. 1960. [From Dissertation Abst. 21(4), 1960.] WR 101: 16

Competitive relationships between natural populations of two ecologically similar species of mice, Peromyscus polionotus and Mus musculus, were investigated during 1957-9 on the AEC Savannah River Reservation. Techniques used were: a study of natural populations, laboratory observations, and an experimental study of populations within an enclosure. There was no evidence to indicate that the changes in numbers of one species influenced changes in numbers of the other. The ecology of the two species was similar. No evidence of any aggressive behavior or conflict over space was found. Observations indicated that competition for seeds can be important, especially in regulation of Mus populations. It is postulated that the migratory behavior of Mus is a mechanism which reduces competition between it and the native species, which enables the two species to coexist in the same habitat even though one species appears to be at a disadvantage.--From long abst.

Raun, Gerald G. (U. Texas, Austin.) BARN OWL PELLETS AND SMALL MAMMAL POPULATIONS NEAR MATHIS, TEXAS, IN 1956 AND 1959. Southwestern Nat. 5(4): 194-200. 20 Dec. 1960. WR 101: 16

Abstract: Two series of owl pellets, collected near Mathis, Texas, were analyzed. Changes in percentages of prey items from 1956 to 1959 indicate an increase in the numbers of Sigmodon hispidus. This increase caused a reduction in the use of other prey species by the owls. The foraging habits of the owls changed with an increase in food supply in the nesting area.

Tanaka, Ryo. (Zool. Lab., Kochi Women's U., Kochi, Japan.) [CONTROL OF RATS AND MICE WITH SPECIAL REFERENCE TO THEIR POPULATION DYNAMICS.] Proc. 15th General Assembly Japan Med. Cong. 1959 (Tokyo) 2: 663-668, 3 figs. 1959. WR 101: 17

In Japanese.

MAMMALS--PARASITES AND DISEASES

Caballero y C., Eduardo. (Inst. Biol. Mexico.) PRESENCIA DE PARAGONIMUS RUDIS (DIESING, 1850) BRAUN, 1899 EN MAMIFEROS SILVESTRES EN CENTROAMERICA, II. [THE PRESENCE OF PARAGONIMUS RUDIS IN FOREST-DWELLING MAMMALS OF CENTRAL AMERICA.] Ann. Inst. Biol. [Mexico] 27(2): 397-401, illus. 1956. [From Biol. Abst. 35(22), 1960.] WR 101: 17

In Spanish.

Mackerras, M. J. (Queensland Inst. Med. Res., Brisbane, Aust.) CATALOGUE OF AUSTRALIAN MAMMALS AND THEIR RECORDED INTERNAL PARASITES, PARTS I-IV. Proc. Linnean Soc. New South Wales 83(2): 101-160. 1958. [From Helminth. Abst. 29 (3), 1960.] WR 101: 17

For each of the parts (Monotremes and Marsupials, Eutheria, Introduced Herbivora and the Domestic Pig, and Man) there is a check list of the species and its internal parasites with a long bibliography.

McKiel, J. A., J. G. Cousineau, and R. R. Hall. (Dept. Natl. Health & Welfare, Ottawa, Ont.) LEPTOSPIROSIS IN WILD ANIMALS IN EASTERN CANADA WITH PARTICULAR ATTENTION TO THE DISEASE IN RATS. Can. J. Comp. Med. Vet. Sci. 25 (1): 15-18. Jan. 1961. WR 101: 17

Of mammals tested other than rats, 2 ground hogs (Marmota monax) and 2 skunks (Mephitis mephitis) had antibodies of Leptospira pomona.--From abst.

Novikova, V. N., L. P. Sagaidak, and N. I. Igolkin. LEPTOSPIROSIS IN THE TOMSK OBLAST. J. Microbiol., Epidemiol., and Immunobiol. 30(11): 72-75. 1959. [From Public Health Engin. Abst. 40(12), 1960.] WR 101: 17

Wild animals of the following species are carriers of leptospirosis in the Tomsk Oblast: narrow-skulled vole, root vole, harvest mouse, red-backed vole, and Altai mole.--From abst.

Tierkel, E. S. (Communicable Dis Center, USPHD, Atlanta, Ga.) RABIA SELVÁTICA. [SYLVATIC RABIES.] Cienc. Vet. 4(3): 274-281. 1959. [From Biol. Abst. 35(23), 1960.] WR 101: 17

In Spanish. The author discussed the world picture of rabies epidemiology in regard to both wild animals and domestic dogs with particular reference to the United States. Over the last years 20% of the human deaths in the United States were caused by contact with wild animals, principally foxes and skunks. Vampire bat rabies transmission (a total of 117 deaths reported in Trinidad, Mexico and British Guiana) was discussed, and the active immunization of cattle with the Flury strain was reviewed. Laboratory procedures and trapping of wild animals without danger to the operator was discussed.--MDS.

SHREWS, MOLES, BATS

Alba, Aurelio Malaga, and Bernardo Villa R. ALGUNAS NOTAS ACERCA DE LA DISTRIBUCION DE LOS MURCIELAGOS DE AMERICA DE NORTE RELACIONADOS CON EL PROBLEMA DE LA RABIA. [SOME NOTES ON THE DISTRIBUTION OF NORTH AMERICAN BATS IN CONNECTION WITH THE RABIES PROBLEM.] Ann. Inst. Biol. [Mexico] 27(2): 529-569, illus. 1956. [From Biol. Abst. 35(22), 1960.] WR 101: 17

In Spanish.

Chew, Robert M., and Harold E. White. (U. Southern Calif., Los Angeles.) EVAPORATIVE WATER LOSSES OF THE PALLID BAT. J. Mamm. 41(4): 452-458, 3 figs. Nov. 1960. WR 101: 18

At 25-27°C and 9-27% relative humidity Antrozous pallidus lose about 30 mg water/hour by evaporation when resting with wings folded, and 63-80 mg/hour when restrained with wings extended. This difference is apparently due to the lower metabolic rate in the resting position and higher rate in the extended-wings position. Water loss is significantly correlated with CO_2 production. Exposure of the flight membrane surfaces, in itself, does not increase evaporation. Resting bats consume 0.47 ml O_2/gm body weight/hour, and lose 0.44 mg water/ml O_2 consumed. The latter ratio is lower than that for desert rodents, possibly because of the exothermic condition of resting bats.--R. M. Chew.

Getz, Lowell L. (U. Mich., Ann Arbor.) FACTORS INFLUENCING THE LOCAL DISTRIBUTION OF SHREWS. Am. Midl. Nat. 65(1): 67-88, 8 figs. Jan. 1961. WR 101: 18

Based on a one-year field study in s. Mich. "The environmental factors considered were vegetation type, cover (fallen trees, brush, leaf litter), temperature, food, moisture and interspecific competition. Blarina brevicauda was found only in moist situations but avoided standing water.... Sorex cinereus occurred in all habitats except upland hardwoods. The reason for the avoidance of this habitat was not determined, but it apparently was not a response to the type of vegetation. Sorex was relatively less abundant in the drier situations than was B. brevicauda and did not avoid standing water."

Greenhall, Arthur M. (Roy. Victoria Inst. Mus., Trinidad, West Indies.) BIONOMICS AND CHEMICAL CONTROL OF FREE-TAILED HOUSE BATS (MOLOSSUS) IN TRINIDAD. US F&WS Spec. Sci. Rep., Wildl. no. 53. iv + 20 p., 5 figs. Aug. 1960. WR 101: 18

Previous studies on control measures are evaluated. BHC, DDT, chlordane, and dieldrin, in various formulations and at different concentrations, were applied in several ways. BHC was preferred for its repellent properties while DDT was preferred as a toxicant. Either of these insecticides resulted in the removal of house bats from roof spaces in 3-4 weeks. DDT had a residual effectiveness of at least one year. Biological data are given on the 2 spp. of Molossus involved. The census and control techniques which were developed have direct application in any area where free-tailed molossid bats are found. --From abst.

Ingles, Lloyd G. (Fresno State Coll., Fresno, Calif.) A QUANTITATIVE STUDY ON THE ACTIVITY OF THE DUSKY SHREW (SOREX VAGRANS OBSCURUS). Ecology 41 (4): 656-660, 1 fig. Oct. 1960. WR 101: 18

From summary: In summer the daily activity rhythm of the dusky shrew has 2 major nocturnal peaks, a lower morning peak and an afternoon depression. Parts of this curve may correlate with the availability of food and the presence or absence of enemies. Light is the regulating factor responsible for changes in the 24-hour rhythm. The average ratio of night-day activity of 1.38 for the dusky shrew is nearly identical with that of the European common shrew. Eight months of captivity produced no discernible changes in basic daily patterns of activity of 2 dusky shrews kept at lower elevations under a variety of seasonal conditions when compared with those of recently captured shrews or with unrestrained wild shrews.

Krzanowski, Adam. (Polish Acad. Sci., Puławy, Poland.) INVESTIGATIONS OF FLIGHTS OF POLISH BATS, MAINLY MYOTIS MYOTIS (BORKHAUSEN 1797). Acta Theriologica 4(11): 178-184. Dec. 1960. WR 101: 18

In English with Polish summary. In a 10-year study 7442 bats of 16 spp. were marked. Fourteen of the 15 possible spp. were found within an area of a few square km in the Puławy district. Two populations of bats in Poland are recognized--a northern one and a southern one.--From summ.

Prokopič, J. HELMINTOFAUNA REJSKOVITYCH (SORICIDAE) VYSOKYCH TATER. [HELMINTHOFAUNA OF THE SHREWS (SORICIDAE) OF THE HIGH TATRY MOUNTAINS.] Zoologické a Entomologicke Listy 6(2): 147-154. 1957. [From Helminth. Abst. 29(3), 1960.] WR 101: 19

In Czech with English and Russian summaries. Twenty-four spp. of helminths were found in 65 specimens of 5 spp. of Soricidae. Tapeworms were the best represented group.

Short, Henry L., Richard B. Davis, and Clyde F. Herreid II. (Mich. State U., East Lansing.) MOVEMENTS OF THE MEXICAN FREE-TAILED BAT IN TEXAS. Southwestern Nat. 5(4): 208-216, 1 fig. 20 Dec. 1960. WR 101: 19

About 36,000 Mexican free-tailed bats, Tadarida brasiliensis mexicana were banded during 1955-8. Four large caves in the Edwards Plateau region of cent. Texas are significant in seasonal movements of the free-tailed bat to its northern range. These bats exchange freely between these caves. Each cave was individual with respect to the amount and direction of local movement from it to any of the other study caves. During the summer months, at the time of birth and rearing of young bats, the cave populations were considered stable.--From abst.

Sluiter, J. W. (U. Utrecht, Netherlands.) REPRODUCTIVE RATE OF THE BAT RHINOLOPHUS HIPPOSIDEROS. Proc. Koninkl. Nederl. Akad. v. Wetenschappen, Ser. C, 63(3): 383-393, 12 figs. 1960. WR 101: 19

Based on a population of bats hibernating in the caves of S. Limburg (Netherlands). "The conclusions are summarized below. 1. Some females of the first year-class give birth at the end of their first year, others do not. It is argued that a first year female reproduces only, if her mother belonged to the second or to a higher year-class at the moment of birth. 2. All the females of the second year-class give birth at the end of their second year. 3. According to the evidence known on the dynamics of the population, it is argued that the annual reproductive rate is at least 1.35, meaning that at least 35% of the reproducing females have twins in the population investigated here." [With mathematical appendix by J. J. Bezem.]--From summ.

RABBITS AND PIKAS

Bull, P. C. (Anim. Ecol. Sect., Dept. Sci. & Indus. Res., Wellington, New Zealand.) PARASITES OF THE EUROPEAN RABBIT, ORYCTOLAGUS CUNICULUS (L), ON SOME SUBANTARCTIC ISLANDS. New Zealand Sci. 3(2): 258-273, map. 1960. [From Biol. Abst. 35(24), 1960.] WR 101: 19

The parasitic fauna of rabbits on the subantarctic islands resembles that in Australia and New Zealand but lacks several parasites characteristic of rabbits in Europe.--From auth. abst.

Costin, A. B., and D. M. Moore. (C.S.I.R.O., Canberra.) THE EFFECTS OF RABBIT GRAZING ON THE GRASSLANDS OF MACQUARIE ISLAND. J. Ecol. 48(3): 729-732, 4 pls. with 8 photos. Oct. 1960. WR 101: 19

Macquarie Island isolated mid-way between New Zealand and the Antarctic has a small vascular flora of 38 spp. Only recently has it been subjected to heavy grazing by rabbits. Selective grazing on the two widespread dominants (Poa foliosa and Stilbocarpa polaris) has been catastrophic. "On steep slopes, the conversion of only a small area of Poa grassland to the minor herb communities is often sufficient to initiate a land-slip which eventually leads to the stripping of an otherwise stable and undamaged slope." There are no stable buffer species on this island to take over the stabilizing functions of the dominants. "Even if it were practicable to exterminate the rabbits, much landslip damage would continue, since the existence of a small landslip on an otherwise intact slope often initiates an irreversible trend towards widespread soil loss."

Dodds, Donald Gilbert. THE ECONOMICS, BIOLOGY AND MANAGEMENT OF THE SNOWSHOE HARE IN NEWFOUNDLAND. Ph.D. thesis, Cornell U. 333 p. 1960. [Long abst. in Dissertation Abst. 21(6), 1960.] WR 101: 20

Four papers based on phases of this study have been listed in Wildlife Review. [See WR 91: 50, 96: 38, 98: 22, and 99: 21.]

Hell, Pavol. (Agr. High Sch., Nitra, Czechoslovakia.) POMER POHLAVIA U ZAJACA (LEPUS EUROPAEUS PALL.). [THE RATIO BETWEEN SEXES IN THE FIELD-RABBIT (LEPUS EUROPAEUS PALL.).] Zool. Listy 23(1): 83-88. 1960. [From Biol. Abst. 35(21), 1960.] WR 101: 20

[In Czech] with German summary. In the winter of 1957-8 the ratio between sexes was determined for 7030 rabbits from 37 localities in sw Slovakia. In using battue shooting [organized driving] the ratio was found to be 1 : 1.43; when nets were used, 1: 1. This favorable ratio obtained by trapping with nets resulted from the fact that the rabbit population had just attained its maximum, and hunting with guns had not been practiced, while trapping with nets had been used for years. In the calculation of the annual increase in a breed, a ratio between sexes of 1 : 1 must be assumed. The goal of breeding should be to attain a ratio of 1 : 2. When a net is used for trapping, the female game is spared. Moreover, living game is badly needed for export and also for a renewal of blood in the regions of Czechoslovakia. The further propagation of capturing rabbits with a net in hunting practice is advised. The rabbit population in autumn 1958 was no longer at a maximum and the ratio between sexes had decreased to 1 : 1.16.--From abst. by MDS.

Holten, Jack W. AGE DETERMINATION AND POPULATIONS OF SWAMP RABBITS (SYLVILAGUS AQUATICUS). M.A. thesis, U. Mo. 56 p. 1960.--Courtesy/ Thomas S. Baskett. WR 101 : 20

Kartman, Leo. (Communicable Dis. Cent., San Francisco 18, Calif.) THE ROLE OF RABBITS IN SYLVATIC PLAGUE EPIDEMIOLOGY, WITH SPECIAL ATTENTION TO HUMAN CASES IN NEW MEXICO AND THE USE OF THE FLUORESCENT ANTIBODY TECHNIQUE FOR DETECTION OF PASTEURELLA PESTIS IN FIELD SPECIMENS. Zoonoses Res. 1(1): 1-27, 1 fig. 19 Sept. 1960. WR 101 : 20

"In the western United States, plague findings in rabbits have accounted for about 0.2% of all wild animal infections reported. Nevertheless, in California 2 of 83 human cases, and in New Mexico 5 of 9 human cases were associated with wild rabbits.... Two plague cases at Roswell, New Mexico in 1960 are... instances...of direct transmission of plague to man by contact with rabbits in a focus of sylvatic plague. This particular area showed that an epizootic had occurred in wood rats, Neotoma, and possibly in other rodents such as white-footed mice, Peromyscus, and that the infection had been transferred to rabbits, Sylvilagus audubonii. The intimate association of cottontail rabbits with wood rats, white-footed mice, grasshopper mice, Onychomys, and kangaroo rats, Dipodomys in an Upper Sonoran zone mesquite biotope appeared to be a basic ecological factor which favored the transfer of disease among the commingling mammals. Since cottontail rabbits are a popular prize for hunters, the dissemination of plague infection to man from these animals is a potential hazard in areas where sylvatic plague foci occur."--From summ.

Lord, Rexford D., Jr., and David A. Casteel. (Ill. Nat. Hist. Surv., Urbana.) IMPORTANCE OF FOOD TO COTTONTAIL WINTER MORTALITY. Trans. 25th N. A. Wildl. Conf. p. 267-276, 3 figs. 1960. WR 101: 20

The importance of food to the winter mortality of cottontail rabbits on 2 study areas in cent. Ill. was tested by supplying them with commercial rabbit food on alternate years. The winter mortality was calculated by two methods with good agreement between the two methods on one area and poor agreement on the other area. The rabbits ate considerable quantities of the food but received no benefit from it, either in the form of a gain in body weight or in reduction of the large winter mortality rate. It was concluded that for the areas studied, lack of sufficient food was not an important factor, either directly or indirectly, in the winter mortality of the cottontail rabbits.--Auth. summ.

Marshall, I. D., and David C. Regnery. (U. Calif., Berkeley.) MYXOMATOSIS IN A CALIFORNIAN BRUSH RABBIT (SYLVILAGUS BACHMANI). Nature 188(4744): 73-74. Oct. 1, 1960. WR 101: 21

"The occurrence of infection with myxoma virus in wild Sylvilagus bachmani lends considerable support to the view that myxomatosis is enzootic in the wild rabbits of California, and it seems likely that the sporadic outbreaks of the disease in commercial rabbitries are due to transmission by mosquitoes from this reservoir."

Martinson, R. Kahler. AGE AND SEX CHARACTERISTICS OF A SWAMP RABBIT (SYLVILAGUS AQUATICUS) POPULATION. M.A. thesis, U. Mo. 81 p. 1961.--Courtesy/ Thomas S. Baskett. WR 101: 21

McDonough, James J. (Div. Fisheries & Game, Westboro, Mass.) THE COTTONTAIL IN MASSACHUSETTS. Mass. Div. Fisheries & Game. iii + 22 p., illus. [1960.] WR 101: 21

A summarization of a 10-year P-R study of the cottontail. Following a description of the 2 species of cottontail rabbits found in Mass., there are discussions covering life history (breeding, crossbreeding, nests, young, sex ratio, weights and body measurements, age, molt, home range, survival, food and food habits, diseases, parasites, and mortality); management; rabbit hunting; and the beagle. On an area consisting of 150 acres of wooded pasture the eastern cottontail population was doubled in 3 years. Management entailed bulldozing 20 to 30 feet wide grid lines 200 feet apart in north-south and east-west directions. These strips were then limed, fertilized, and seeded. The cover on eleven alternate compartments between grids was clear-cut. Brush piles were scattered with excess brush being burned. Controlled grazing by cattle was allowed.

O'Farrell, Thomas P. SNOWSHOE HARES IN ALASKA. I. HOME RANGE AND ASPECTS OF POPULATION AND NATURAL HISTORY IN INTERIOR ALASKA. M.S. thesis, U. Alaska. 77 p., 24 figs. May 1960. WR 101: 21

An investigation of the home range, population size and natural history of a snowshoe hare population was conducted during 1959-60. Live-trapping and tagging were used to gather the bulk of the data. The track count method, pellet count method and strip census were not usable under subarctic conditions. The Lincoln Index, Schnabel Method and calendar-graph method gave an indication of the population size which ranged from 255 hares in Aug. to 5 in Jan. Home range was calculated using the boundary inclusive method. Males had a home range of 11.8 acres. Females had a home range of 13.0 acres. There was no significant difference between the annual and early breeding season home ranges. When the snow on the area was not compacted or was thawing, hares used packed runways. Under different snow conditions they used the entire snow cover for movements. The summer food of hares was green vegetation. Winter food consisted of the bark and twigs of willow, aspen, alder, and spruce. Hares studied did not show a cover preference. One hare was shot 12.5 miles from its tagging site--probably the longest recorded movement by a snowshoe hare in the literature. The breeding season extended from mid-March to mid-July. A growth curve was drawn which indicated that Alaskan hares grow at a greater rate than Mont. or Maine hares.--Courtesy/ Frederick C. Dean.

Toll, John E. LIFE HISTORY OF THE SWAMP RABBIT (SYLVILAGUS AQUATICUS) IN MISSOURI. M.A. thesis, U. Mo. 61 p. 1958. WR 101: 21

[See Toll et al., WR 98: 31; Conaway et al., WR 99: 20; and Holten and Toll, WR 99: 21 for reviews of papers based on this study.]--Courtesy/ Thomas S. Baskett.

Watt, Alex S. (Cambridge, England.) THE EFFECT OF EXCLUDING RABBITS FROM ACIDIPHILOUS GRASSLAND IN BRECKLAND. J. Ecol. 48(3): 601-604, 1 fig. Oct. 1960. WR 101: 21

Watt, Alex S. (Cambridge, England.) POPULATION CHANGES IN ACIDIPHILOUS GRASS-HEATH IN BRECKLAND, 1936-57. J. Ecol. 48(3): 605-629, 22 figs. Oct. 1960. WR 101: 22

Comparison is made between the behavior of the few plant species found on an infertile, podsolized, overdrained sand--in the absence of rabbits and in their intermittant presence. Quantitative data were obtained from permanent plots. In the absence of rabbits, inside the enclosure, the dominance of Festuca is achieved in about 11-13 years, at a cover percentage between 50 and 60. The other species are eliminated or are present in small amounts and sporadically.

RODENTS--MISCELLANEOUS

Butterworth, Bernard Bert. A COMPARATIVE STUDY OF SEXUAL BEHAVIOR AND REPRODUCTION IN THE KANGAROO RATS, DIPODOMYS DESERTI STEPHENS AND DIPODOMYS MERRIAMI MEARNS. Ph.D. thesis, U. Southern Calif. 184 p. 1960. [Long abst. in Dissertation Abst. 21(6), 1960.] WR 101: 22

Elzinga, Richard John. BIOTIC ASSOCIATIONS OF RODENT AND ECTOPARASITE POPULATIONS. Ph.D. thesis, U. Utah. 105 p. 1960. [From Dissertation Abst. 21(4), 1960.] WR 101: 22

A study to determine the relationships that exist between rodents and their ectoparasites in 3 types of biotic communities and to compare the findings with those obtained from a similar study conducted by the staff of Ecological Research, U. Utah.

Getz, Lowell L. (U. Mich., Ann Arbor.) A POPULATION STUDY OF THE VOLE, MICROTUS PENNSYLVANICUS. Am. Midl. Nat. 64(2): 392-405, 8 figs. Oct. 1960. WR 101:22

A comparative study of vole populations in "old field" and marsh of s. Mich. was made by live trapping at monthly intervals for 13 months. "The densities in the marsh varied from 18 to 63 individuals per hectare while those of the old field varied from 6 to 18 per hectare. Two peaks (spring and fall) and two troughs (late summer and winter) of density occurred." The short life span (0.7 month) resulted in the loss of most of the population between the breeding seasons. The greatest mortality was during the first month of life (88%). No significant difference was observed between the length of survival of either sex in either area.--From summ.

Getz, Lowell L. (U. Mich., Ann Arbor.) FACTORS INFLUENCING THE LOCAL DISTRIBUTION OF MICROTUS AND SYNAPTOMYS IN SOUTHERN MICHIGAN. Ecology 42(1): 110-119, 3 figs. Jan. 1961. WR 101: 22

Microtus pennsylvanicus and Synaptomys cooperi were found only in areas having grass-like vegetation. Microtus avoided grassy areas containing woody plants; Synaptomys did not avoid such situations. There was a positive correlation between amount of graminoids and abundance of Microtus. This appeared to be a combined influence of a greater food supply and increased humidity resulting from the greater cover. Moist situations were preferred over drier ones. Standing water was not avoided by Microtus so long as vegetation was present above the surface in which nests and feeding stations could be constructed; Synaptomys avoided standing water.--From summ.

Harmston, F. C., and C. T. Wright. (Communicable Dis. Cent., Greeley, Colo.) DISTRIBUTION AND CONTROL OF RATS IN FIVE ROCKY MOUNTAIN STATES. Public Health Rep. 75(11): 1077-1084, 1 fig. Nov. 1960. WR 101: 22

Studies conducted in Colo., Idaho, Mont., Utah, and Wyo. in 1947-55 indicated that the areas of infestation of Rattus rattus are rapidly expanding despite periodic poisoning campaigns which have been used during the past 30-40 years. A 4-point program is offered aimed at the eradication of rats in the infested areas and the prevention of their migration into presently uninfested areas.

Hoffmeister, Donald F., and Luis de la Torre. (U. Ill., Urbana.) A REVISION OF THE WOOD RAT NEOTOMA STEPHENSI. J. Mamm. 41(4): 476-491, 4 figs., 1 pl. Nov. 1960. WR 101: 23

A taxonomic revision of the rodent species Neotoma stephensi which occurs from w. Ariz. to w. N. Mex., and in s.-cent. Utah. Two subspecies and several geographic variants, regarded as below the subspecific level of differentiation, are characterized. In addition, pertinent information is given on taxonomic characters of the species, age, sexual, and color variation, growth and reproduction, and habitat.--Auth. abst.

Klein, Harold G. (Pa. State U., McKeesport.) ECOLOGICAL RELATIONSHIPS OF PEROMYSCUS LEUCOPUS NOVEBORACENSIS AND P. MANICULATUS GRACILIS IN CENTRAL NEW YORK. Ecol. Monog. 30(4): 387-407, 7 figs. Oct. 1960. WR 101: 23

Based on mark-and-recapture studies on 3 woodland areas in the summers of 1955 and 1956, and snap-trapping in the summer of 1957. Peromyscus leucopus noveboracensis was positively associated with plant species of Oak-Chestnut Forest. P. maniculatus gracilis was usually positively associated with Hemlock-White Pine-Northern Hardwoods Forest. P. m. gracilis habitats appeared to be cooler and moister than those occupied by P. l. noveboracensis.

Kubik, Jerzy. (M. Curie-Sklodowska U., Lublin, Poland.) BIOMORPHOLOGISCHE BEOBACHTUNGEN UBER DIE MUS MUSCULUS LINNAEUS, 1758 POPULATION AUS EINER STEINKOHLENGRUBE. [BIOMORPHOLOGICAL OBSERVATIONS ON A MUS MUSCULUS LINNAEUS, 1758 POPULATION IN A COAL MINE.] Acta Theriologica 4(1): 1-10. Apr. 1960. WR 101: 23

In German with Polish summary.

McNally, J. (Fisheries & Wildl. Dept., Melbourne, Aust.) THE BIOLOGY OF THE WATER RAT HYDROMYS CHRYSOGASTER GEOFFROY (MURIDAE: HYDROMYINAE) IN VICTORIA. Aust. J. Zool. 8(2): 170-180, 5 figs. 1960. WR 101: 23

In the wild population studied, ♂♂ were more numerous and larger than ♀♀. The breeding season extends from Sept. to Jan. The usual litter is 4 or 5. Growth is rapid; young attain adult size in less than a year. The fecundity of water rats is lower than that of other murids but fertility is high. "The water rat has potentiality for management as an economic fur-bearing animal."--From summ.

Miller, Richard S., and Henry E. Bond. (U. Sask., Saskatoon.) THE SUMMER BURROWING ACTIVITY OF POCKET GOPHERS. J. Mamm. 41(4): 469-475, 1 fig. Nov. 1960. WR 101: 23

The burrowing activity of the mountain pocket gopher, Thomomys talpoides, was studied during the summers of 1957-8. Relatively little activity was recorded during June and July, but burrowing increased to a peak late in Aug. The seasonal trend in activity was not correlated with precipitation and soil moisture, but seemed, instead, to represent seasonal changes in breeding behavior and feeding habits.--From auth. abst.

Miller, Richard S., and Ronald A. Ward. (U. Sask., Saskatoon.) ECTOPARASITES OF POCKET GOPHERS FROM COLORADO. Am. Midl. Nat. 64(2): 382-391. Oct. 1960. WR 101: 23

A study of the ectoparasites of 4 spp. of pocket gophers that occur in Colo. Of those collected, 2 mites, 5 lice and 2 fleas are primarily restricted to pocket gophers; 4 mites, 3 ticks and 1 flea are general rodent parasites; and 3 mites are non-parasitic and may have been accidental.--From summ.

Ostakhov, S. M., and V. I. Braul. [EXPERIMENT IN CHEMICAL CONTROL OF THE WATER RAT BY AIRCRAFT.] Zashch. Rast. ot Vred. i Boleznei 1960(2): 19. Feb. 1960. [From Bibliog. Agr. 24(10), 1960.] WR 101: 23

"In Russian. On fields of grains and vegetables."

Shaw, T. H., W. P. Hsia, and T. C. Lee. [AGE AND GROWTH IN THE RED-BACKED VOLE, CLETHRIONOMYS RUTILUS, FROM DAILING, LESSER KHINGAN MOUNTAINS.] Acta Zool. Sinica 11(1): 57-66, illus. 1959. [From Biol. Abst. 35(22), 1960.] WR 101: 24

In Chinese with English summary. The material used for this study was collected in Manchuria during 1956-7. A total of 863 skulls of both sexes was soaked in hot water, and then carefully cleaned. The 1st molar of the lower jaw was chosen for microscopic examination. Based upon the morphology of the tooth roots, 4 age groups have been devised. The 1st group or the so-called juveniles, about 2 or 2-1/2 months old, are sexually inactive. The 3 other groups, subadults, adults, and old adults, have the power of reproduction. Seasonal variations in population composition have been observed. In spring and summer, subadults and adults are dominant individuals. After July, however, juveniles are more numerous than subadults and adults.--From auth. summ.

Sidorowicz, Jerzy. (Mammals Res. Inst., Białowieża, Poland.) PROBLEMS OF THE MORPHOLOGY AND ZOOGEOGRAPHY OF REPRESENTATIVES OF THE GENUS LEMMUS LINK 1795 FROM THE PALAEARCTIC. Acta Theriologica 4(5): 53-80, 1 fig. Nov. 1960. WR 101: 24

In English with summaries in Russian and Polish.

Sidorowicz, Jerzy. (Mammals Res. Inst., Białowieża, Poland.) INFLUENCE OF THE WEATHER ON CAPTURE OF MICROMAMMALIA. I. RODENTS (RODENTIA). Acta Theriologica 4(9): 139-158, 1 fig. Dec. 1960. WR 101: 24

In English with Polish summary. Of the factors investigated (rain, insolation, minimum temperature and maximum temperature) rainfall was the most important. "It causes an increase of animals captured, which rise with an increase in the intensity of rainfall. The most effective is rain falling throughout a 24-hour period.... Statistical analysis reveals the great influence exerted by minimum temperature on captures, while maximum temperature does not reveal that it has any effect. The activity of rodents, expressed in numbers captured, is greatest within limits of 13.1-16.0°C. (minimum temperature) and 24.1-27.0°C. (maximum temperature)."--From conclusions.

Skuratowicz, W., and Z. Czarnecki. [NUMEROUSNESS OF FIELD RODENTS IN POLAND IN 1959 AND FORECASTING FOR 1960.] Poznan Inst. Ochrony Roslin. B. 7: 95-100. 1960. [From Bibliog. Agr. 24(10), 1960.] WR 101: 24

"In Polish [with] English summary. Plant pest."

Stein, Georg H. W. (Humboldt U., Berlin N. 4, Invalidenstr. 43.) ZUM HAARWECHSEL DER FELDMAUS, MICROTUS ARVALIS (PALLAS, 1779) UND WEITERER MUROIDEA. [ON THE MOLT OF THE FIELD MOUSE, MICROTUS ARVALIS (PALLAS, 1779) AND OTHER MUROIDEA.] Acta Theriologica 4(3): 27-44, 1 fig. July 1960. WR 101: 24

In German with Polish summary.

Vietinghoff-Riesch, Arnold Frhr. von. DER SIEBENSCHLÄFER (GLIS GLIS L.). [THE EDIBLE DORMOUSE (GLIS GLIS L.).] Inst. für Jagdkunde U. Göttingen, Monog. der Wildsäugetiere 14. 196 p., 51 figs. 1960. Price 29.10 DM. WR 101: 24

In German. A well-illustrated monograph on the edible dormouse. In a dozen chapters there are fairly thorough discussions of the taxonomy, morphology, anatomy, geographical distribution, ecology, food habits, economic importance, hibernation, reproduction, behavior, population dynamics (including information on age composition, population density, and mortality), enemies, trapping, and conservation of this arboreal rodent. An extensive bibliography listing 192 items, an author and a subject index complete this work.

Wasilewski, Wacław. (Mammals Res. Inst., Białowieża, Poland.) ANGABEN ZUR BIOLOGIE UND MORPHOLOGIE DER KURZOHRMAUS PITYMYS SUBTERRANEUS (DE SÉLYS LONGCHAMPS 1835). [DATA ON THE BIOLOGY AND MORPHOLOGY OF PITYMYS SUBTERRANEUS (DE SÉLYS LONGCHAMPS 1835).] Acta Theriologica 4(12): 185-247, 10 figs. Dec. 1960. WR 101: 25

In German with Polish summary. Contains sections on study techniques used, habitats, life span, reproduction, dentition, body measurements, annual and seasonal variability in population levels of Pitymys subterraneus in Białowieża National Park.

RATTUS AND MUS

Petrusewicz, Kazimierz. (Polish Acad. Sci., Warsaw.) SOME REGULARITIES IN MALE AND FEMALE NUMERICAL DYNAMIC[S] IN MICE POPULATIONS. Acta Theriologica 4 (8): 103-137, 8 figs. Dec. 1960. WR 101: 25

In English with Polish summary. Abstract: In confined populations of mice, the number of females has been found to be greater than males, and more so at periods of minimum population numbers than at maximum. Males were found to exceed females in: rate and amplitude of numerical changes, mortality, and duration of numerical stabilization. In birth rate the sexes were alike.

SCIURIDS

Johnson, Morris D. MOVEMENTS, RECAPTURE FREQUENCIES AND DURATION OF RESIDENCE OF FOX SQUIRRELS RELEASED IN A NEW HABITAT. M.A. thesis, U. Mo. 69 p. 1957.--Courtesy/ Thomas S. Baskett. WR 101: 25

Petrov, A. M., and I. A. Sadikov. [TRICHOCEPHALUS CUTCASHENI N. SP. FROM THE INTESTINE OF SCIURUS PERSICUS IN AZERBAIDZHAN.] Doklad. Akad. Nauk Azerbaidz. SSR 13(1): 69-71. 1957. [From Helminth. Abst. 29(4), 1960.] WR 101: 25

In Russian.

Snyder, Robert L., and John J. Christian. (Johns Hopkins, Baltimore, Md.) REPRODUCTIVE CYCLE AND LITTER SIZE OF THE WOODCHUCK. Ecology 41(4): 647-656, 2 figs. Oct. 1960. WR 101: 25

"From 1955 to 1958 the reproductive organs of 382 adult female woodchucks from a 10,000 acre area in southcentral Pennsylvania were examined to obtain information about reproduction and the reproductive cycle.... From 75 to 80% of the females were pregnant each year, except in 1956 when only 20 of 36 examined were pregnant. The collective noun gravidum (pl. gravida) has been introduced to describe the total number of embryos or fetuses in a pregnancy. Gravidum is considered to be a prenatal counterpart of litter. The mean number of implantations per gravidum varied considerably from year to year, being as low as 4.00 in 1956 and as high as 4.67 in 1957. The percentage resorption of embryos and fetuses declined from 16.6 in 1955 and 26.1 in 1957 to 13.2 in 1958. The approximate average litter size was highest in 1958, 3.97 compared to 3.47 in 1955 and 3.42 in 1957. The reproductive rate increased from lows of 2.59 in 1955 and 2.57 in 1957 to 3.24 in 1958."--From summ.

BEAVER

Currier, A., W. D. Kitts, and I. McT. Cowan. (U. British Columbia, Vancouver.) CELLULOSE DIGESTION IN THE BEAVER (CASTOR CANADENSIS). Can. J. Zool. 38(6): 1109-1116. Dec. 1960. WR 101: 25

The beaver, despite its predominantly woody diet, has not developed any special mechanisms for handling cellulose not possessed by a wide range of other species.

Henderson, F. Robert. BEAVER IN KANSAS. State Biol. Surv. Mus. Nat. Hist., Misc. Publ. no. 26. 85 p., 36 figs. 16 Dec. 1960. WR 101: 26

Based upon intensive studies in 2 counties and extensive statewide studies, the beaver population for Kansas is estimated at 23,000. Censusing by airplane proved to be an inexpensive and rapid method while censusing by boat proved to be the most reliable. The costs per 10 colonies were $1.22 and $7.76 respectively. A third method (based on landowner interviews and spot field checks) costs $10.68 per 10 colonies counted but only $5.01 per 10 colonies estimated. This method does not have the accuracy of the other two methods. The history, economic importance, management, ecology, trapping and pelting, and utilization of beaver meat are discussed.

MUSKRAT AND NUTRIA

Artimo, Atso. THE DISPERSAL AND ACCLIMATIZATION OF THE MUSKRAT, ONDATRA ZIBETHICUS (L.), IN FINLAND. Pap. Game Res. (Helsinki) 21. 101 p., 42 figs. 1960. WR 101: 26

In English. About 1100 muskrats were imported into Finland from Germany, Czechoslovakia, and N. A. Muskrats reared on fur farms in Finland and specimens caught from nature were also used for introductions. About 2300 were introduced and distributed to 293 localities. Within 35 years muskrats had occupied virtually all watercourses capable of supporting them. The number of muskrats released seems not to have had any effect on the rate of dispersion. No competition in regard to food or space has been observed between muskrats and other mammals living in Finnish watercourses. In Finland, the aquatic vegetation available to muskrats is similar to that found in their native country, as well as the same (or closely related) enemies. Muskrats since acclimatization use bank dens instead of houses. The logarithmic growth of muskrat populations has been biphasic with rapid growth to 1937--then a 7 year decline --then a steady increase to the peak year of 1955.--From summ.

Kaplin, A. A. THE NUTRIA. Priroda (Moscow) 1960(6): 93-95. June 1960. [From Bibliog. Agr. 24(10), 1960.] WR 101: 26

In Russian.

MacLennan, J. M., translator. TRANSLATIONS OF RUSSIAN GAME REPORTS / VOLUME 7 / SELECTIONS FROM "ACCLIMATIZATION OF MUSKRATS IN THE USSR" BY N. P. LAVROV. Can. Wildl. Serv., Ottawa. 1-150 p., 3 figs. 1960. $1.00, paper, from Queen's Printer, Ottawa, Ont., Canada. WR 101: 26

Translations of selections from a 530-page monograph by Lavrov listed in WR 99: 61. Sections included are entitled: Basic Principles of Acclimatization of Furbearers, History of Muskrat Breeding and Stocking in the USSR, Sex Cycle and Reproduction of the Muskrat, Diet of the Muskrat, Diseases of the Muskrat, Fur Structure and Moult in Muskrats, Causes of Fluctuations in Muskrat Numbers and Principles for Forecasting the "Crop", Muskrat Trapping Organizations, and Biotechnical and Pre-Season Measures. There is a bibliography of 51 items. Bibliographic material superfluous to the text--and that not easily accessible were culled from the 386 items listed in the original work.

Prasad, H. TWO NEW SPECIES OF COCCIDEA OF THE COYPU. J. Protozool. 7(3): 207-210. Aug. 1960. [From Bibliog. Agr. 24(10), 1960.] WR 101: 26

BEARS

Craighead, John J., Maurice Hornocker, Wesley Woodgerd, and Frank C. Craighead, Jr. (US F&WS, Missoula, Mont.) TRAPPING, IMMOBILIZING AND COLOR-MARKING GRIZZLY BEARS. Trans. 25th N. A. Wildl. Conf. p. 347-363. 1960. WR 101: 26

An intensive long-term study of the grizzly bear Ursus horribilis was initiated in Yellowstone Natl. Park during the summer of 1959. Thirty grizzlies were captured and 27 ear tagged, color marked, and released for further observation. Mobile culvert traps were used for the capture of 23 bears and 7 were shot using the dart gun. The effectiveness of succinycholine chloride is

evaluated. Thirty percent of the grizzlies required multiple doses, but the single dose injection proved more satisfactory. Details of tagging, color marking, and handling techniques are described. The largest bear trapped weighed 710 pounds.--From summ.

RACCOON, RINGTAIL, COATI

Dehnel, A. (Sect. Compar. Anat. UMCS, Lublin, Poland.) EIN NEUES SÄUGETIER DER POLNISCHEN FAUNA (NYCTEREUTES PROCYONOIDES GRAY). [A NEW MAMMAL AMONG THE POLISH FAUNA (NYCTEREUTES PROCYONOIDES GRAY).] Ann. Univ. Mariae Curie-Skłodowska Sect. C. - Biol. 10(10): 269-274. 1957. [From Biol. Abst. 35(21), 1960.] WR 101: 27

In German with Russian summ. The author describes 2 specimens of this animal, who were hunted down and later killed by dogs. These are the 1st cases in which these animals have been seen in the Białowieża area, into which they presumably wandered from White Russia, where they had been introduced before the war. Other live specimens have been seen elsewhere, and the author expects the animal to penetrate along Poland's entire eastern border and to thrive there, since its natural enemies are absent from Polish soil.--MDS.

Sanderson, Glen C. (Ill. Nat. Hist. Surv., Urbana.) RACCOON VALUES--POSITIVE AND NEGATIVE. Ill. Wildl. 16(1): 3-6, 3 figs. Dec. 1960. WR 101: 27

An estimated 100,000 raccoons are harvested annually in Ill. The average price paid for pelts in 1959-60 was $1.38. Between 25,000 and 50,000 Ill. raccoon carcasses are consumed as food. Raccoon populations have increased--there are 10 to 15 times as many raccoons now as there were 20 years ago in the midwestern states. They have increased in numbers and range. Control methods, age and sex ratios, mortality and reproduction, raccoon weights, diseases, and parasites are discussed.

MUSTELIDS

Krott, Peter. (Pinzolo, Trentino, Italy.) DER VIELFRASS (GULO GULO L. 1758). ZUR KENNTNISS SEINER NATURGESCHICHTE UND SEINER BEDEUTUNG FÜR DEN MENSCHEN. [THE WOLVERINE (GULO GULO L. 1758). ON THE KNOWLEDGE OF ITS NATURAL HISTORY AND ITS IMPORTANCE TO MAN.] Inst. für Jagdkunde U. Göttingen, Monog. der Wildsäugetiere 13. vii + 159 p., 43 figs., 5 maps. 1959. Price 20.75 DM. WR 101: 27

In German. The first section of this monograph deals with the systematics, phylogeny, current status and distribution, morphology, reproduction, and pelage of the wolverine. Then follows a 60-page detailed report of the author's observations of this animal in Finland and Sweden made during 1948-56. These experiences have been made available to English readers in Krott's DEMON OF THE NORTH [see WR 95: 54], a popular account of these investigations. The remainder of this monograph covers the habitat, food habits, migration, behavior (individual and social), and the hunting and trapping of the wolverine. Peter Krott has in this work shed considerable light on the life history of "this elusive, ill reputed beast."

BIG GAME, GENERAL

Christian, John J., Vagn Flyger, and David E. Davis. (U. Pa., Philadelphia.) FACTORS IN THE MASS MORTALITY OF A HERD OF SIKA DEER, CERVUS NIPPON. Chesapeake Sci. 1(2): 79-95, 6 figs. June 1960. WR 101: 27

A six year population study on sika deer, Cervus nippon, introduced in 1916 on James Island in Chesapeake Bay, Maryland, provided unique results because of the unusual completeness of the data due to an islandic situation. A density of one deer per acre was reached in 1955. In 1958, 60 percent of the population, mainly young and females, died during January and February. Gross and microscopic studies were made on 18 deer, shot and autopsied in 1955, 1957-60, plus one recently dead at the time of the die-off. An inclusion hepatitis and glomerulonephritis are described which involved all deer, especially after 1958,

but not in 1955. These diseases were ruled out as causal factors in the die-off, as were malnutrition and poisoning. The deer were apparently in good nutritive status throughout. It was concluded that physiological derangements resulting from high population density produced the observed effects.--From abst.

Dodds, Donald G. (Box 793, Kentville, Nova Scotia.) A CONTRIBUTION TO THE ECOLOGY OF THE MOOSE IN NEWFOUNDLAND. M.S. thesis, Cornell U. 116 p., 20 figs., 15 tables. 1955. WR 101: 28

Includes a vegetative browse and reproduction survey on burned areas, movement and activity data, and behavioral information relative to breeding and maternal care. Behavioral data was recorded from 1022 individual moose observations from June through Oct. 1953.--Author.

Eygenraam, J. A. (ITBON, Arnhem, Netherlands.) DE REEWILDPOPULATIE IN NEDERLAND. [SEX RATIO, REPRODUCTION AND MORTALITY IN ROE-DEER IN THE NETHERLANDS.] Lutra 1960(2): 33-42, 1 fig. 1960. WR 101: 28

In Dutch with summaries in French, German, and English. Roe-deer have increased their range in the Netherlands since World War II and the population is estimated at 18,000 with an adult sex ratio of 1 : 1.3. "The main factors for the increase are: 1. Cultivation of heathfields into forest and agricultural land.--2. Decrease of poaching...--3. Undershooting in the autochthonous areas.--4. Changes in shooting methods: shooting with a bullet is prescribed, which produces a smaller cripple loss." Hunter success in recent years has ranged from 53% to 59%. Natural mortality in 1958-9 season was 40% of the harvest. The reduction rate from all causes is 34% and equals the rate of production.--From summ.

Forrester, Donald J. A PRELIMINARY INVESTIGATION OF THE PROTOSTRONGYLIN LUNGWORM-BIGHORN SHEEP RELATIONSHIPS IN MONTANA. M.S. thesis, Mont. State U. 79 p. June 1960. WR 101: 28

This investigation was conducted from Sept. 1958 to Mar. 1960. The objectives were to investigate the effects of temperature and humidity on the first stage larvae of protostrongylin lungworms infecting bighorn sheep, to establish the occurrence and status of protostrongylosis in bighorn sheep in Montana, and to obtain information on the bionomics of the intermediate hosts. Fresh droppings collected every month for a year from a herd of bighorns on Wildhorse Island showed the number of larvae per 100 mg. dry feces to increase from 2.2 in summer to 3.3 in fall, 4.7 in winter, and 7.5 in the spring. Ninety-six percent of almost 500 fecal samples collected from the major bighorn herds in Western Montana contained protostrongylin larvae. Forty-three lungs from mature rams and two from mature ewes were examined. Pathology caused by Protostrongylus stilesi was found on all lungs, but in varying degrees. No evident correlation was found between the degree of lung pathology and the larval content of feces.--From abst.

Gilmore, R. E., and R. W. Allen. (USDA, University Park, N. Mex.) HELMINTH PARASITES OF PRONGHORN ANTELOPE (ANTILOCAPRA AMERICANA) IN NEW MEXICO WITH NEW HOST RECORDS. Proc. Helminth. Soc. Wash. 27(1): 69-73. 1960. [From Helminth. Abst. 29(4), 1960.] WR 101: 28

A report on the 12 species of helminths found in 18 antelope examined.

Gorodedetskii, V. F. [A PICTURE OF THE BLOOD OF REINDEER.] Zhivotnovodstvo 1959(2): 74-76. Feb. 1960. [From Bibliog. Agr. 24(10), 1960.] WR 101: 28

"In Russian."

Jones, Dale A. (Shoshone Natl. For., Cody, Wyo.) A SALABLE APPROACH TO THE ELK-CATTLE COMPETITION PROBLEM. Trans. 25th N. A. Wildl. Conf. p. 387-395, 4 figs. 1960. WR 101: 28

This paper describes a technique used to: (1) Separate summer cattle and winter-spring elk use of grass ranges, (2) sell the results to people involved. Trends in production and utilization were obtained by clipping and weighing all grass and sedge plants protected under a cone cage. These samples were compared with those obtained from comparable sample plots on the open range. The construction of a utilization cage is described. Elk pellet group samples of ten 1/100 acre plots are read in conjunction with the clipping studies to establish trends of elk use.--From auth. abst.

Kadenatsii, A. N., and B. L. Garkavi. [SETARIA CAPREOLA N. SP. FROM EUROPEAN ROE DEER.] Trudi Omskogo Veterinarnogo Inst. 15: 237-242. 1957. [From Helminth. Abst. 26(5/6), [1960].] WR 101: 29
In Russian.

Lebedeva, L. S. [FOOD HABITS OF SAIGA TATARICA INHABITING THE RIGHT BANK OF THE VOLGA RIVER.] Bul. Moscow Obshch. Ispyt. Prirody, Biol. 64(5): 27-35. 6 Feb. 1960. [From J. Mamm. 41(4), 1960.] WR 101: 29
In Russian with English summary.

Loginov, F., G. Krutikov, A. Pomortseva, and M. Kurbatova. [DIAGNOSIS OF BRUCELLOSIS IN REINDEER.] Sel'sk. Khoz. Sibiri 1960(7): 73-74. July 1960. [From Bibliog. Agr. 24(10), 1960.] WR 101: 29
In Russian.

Manning, T. H. (37 Linden Terrace, Ottawa, Ont., Canada.) THE RELATIONSHIP OF THE PEARY AND BARREN GROUND CARIBOU. Arctic Inst. N. A., Tech. Pap. no. 4. 52 p., 9 figs. June 1960. Price to members of the Inst., $1.00; to non-members, $2.00. WR 101: 29
With Russian summary. This is primarily a taxonomic study of 4 caribou populations--the Queen Elizabeth Islands, Banks Island, Dolphin and Union, and the mainland. Historical records of the Dolphin and Union herd and its extinction as a migratory unit are summarized.--From auth. abst.

McKinley, Daniel. (Salem Coll., Winston-Salem, N. C.) THE QUESTION OF THE PRONGHORN IN PIONEER MISSOURI. J. Mamm. 41(4): 503-505. Nov. 1960. WR 101: 29
A search of mammalogical and historical literature offers no proof for claims that Antilocapra americana has been found in Mo. within historical times.--Auth. abst.

Pruitt, William O., Jr. (U. Alaska, College.) BEHAVIOR OF THE BARREN-GROUND CARIBOU. Biol. Pap. U. Alaska no. 3. ii + 44 p., 7 figs. Apr. 1960. 75¢. WR 101: 29
With Russian summary. Based on a one-year field study in n. Manitoba, n. Saskatchewan, and the Northwest Territories. Sections include: basic caribou behavior, behavior during snow season, behavior during migration, behavioral reactions to insects, reproductive behavior, doe-fawn relationships, and miscellaneous behavior observations. Several aspects of caribou behavior are tabulated to complement Altmann's summary for wapiti, moose, chamois, and wild pig. [See WR 87: 43.]

Senger, Clyde M. (Mont. State U., Missoula.) NOTES ON THE ECTO- AND ENDOPARASITES OF THE RATTLESNAKE DEER HERD. Proc. Mont. Acad. Sci. 18: 33. 1958. WR 101: 29
Seventeen deer (7 ♀♀ and 10 ♂♂) from one-half to about seven and one-half years of age were collected during Jan.-Mar. 1958. Six kinds of ectoparasites were found: winter ticks, ear ticks, mites, biting and sucking lice, and keds. Six types of endoparasites were found: Onchocerca cervipedis, Nematodirus spathiger nose bots, two unidentified cestodes, and one unidentified nematode.

Smith, Dixie R. DESCRIPTION AND RESPONSE TO ELK USE OF TWO MESIC GRASSLAND AND SHRUB COMMUNITIES IN THE JACKSON HOLE REGION OF WYOMING. Northwest Sci. 34 (1): 25-36. Feb. 1960. [From J. Mamm. 41(4), 1960.] WR 101: 29

DEER (Odocoileus)

Bartlett, I. H. (Mich. Dept. Cons., Lansing.) WHERE WE STAND AFTER EIGHT YEARS. Mich. Cons. 29(16): 7-9. Nov.-Dec. 1960. WR 101: 29
Many deer continue to starve in Mich. despite annual harvests of 100,000-plus deer and the creation of 200,000 acres of new food on their range annually.

DEER (Odocoileus)--Continued

Doutt, J. Kenneth, and John C. Donaldson. (Carnegie Mus., Pittsburgh, Pa.) FEMALE DEER WITH ANTLERS. Pa. Game News 31(12): 52-53, 1 fig. Dec. 1960. WR 101: 30
Contains tabulated information on 16 antlered deer reported during 1959 in Pa.

Hamilton, Rex. FACTORS AFFECTING DISPERSAL OF RELEASED DEER IN INDIANA. M.A. thesis, U. Mo. 64 p. 1961.--Courtesy/ Thomas S. Baskett. WR 101: 30

Haugen, Arnold O., and Eldie W. Mustard, Jr. (Iowa Coop. Wildl. Res. Unit, Ames.) VELVET-ANTLERED PREGNANT WHITE-TAILED DOE. J. Mamm. 41(4): 521-523, 1 pl. Nov. 1960. WR 101: 30
A 3.5-year velvet-antlered lactating white-tailed doe was shot in Iowa in Dec. 1958. A fawn was with the doe when she was shot. Two embryos were recovered and from measurements it was calculated that the doe had been bred about the third week of Nov.

Pirtle, E. C., and J. M. Layton. (Vermillion, S. Dak.) EPIZOOTIC HEMORRHAGIC DISEASE IN WHITE-TAILED DEER--CHARACTERISTICS OF THE SOUTH DAKOTA STRAIN OF VIRUS. Am. J. Vet. Res. 22(86): 104-108. Jan. 1961. WR 101: 30
With summary in Interlingua. "Several characteristics of the S. Dak. strain of virus causing epizootic hemorrhagic disease of deer have been investigated. The virus has a signal pathogenicity for native white-tailed deer, but mule deer are relatively refractory to its effects."--From summ.

Ristic, Miodrag, and A. M. Watrach. (Urbana, Ill.) STUDIES IN ANAPLASMOSIS. II. ELECTRON MICROSCOPY OF ANAPLASMA MARGINALE IN DEER. Am. J. Vet. Res. 22 (86): 109-116, 10 figs. Jan. 1961. WR 101: 30
With summary in Interlingua. Morphological characteristics of A. marginale in the white-tailed deer.

MAMMALS--MARINE

Backhouse, Kenneth. LOCOMOTION AND DIRECTION-FINDING IN WHALES AND DOLPHINS. New Scientist (London) 7(164): 26-28. 7 Jan. 1960. [From J. Mamm. 41(4), 1960.] WR 101: 30

Barnes, Ruth M. THE GREY SEAL (HALICHOERUS GRYPUS) IN NORFOLK. Trans. Norfolk and Norwich Nat. Soc. 19(2): 73. Mar. 1960. [From J. Mamm. 41(4), 1960.] WR 101: 30

Chittleborough, R. G. (C.S.I.R.O., Sydney, Australia.) DETERMINATION OF AGE IN THE HUMPBACK WHALE, MEGAPTERA NODOSA (BONNATERRE). Norsk Hvalfangst-Tidende (Norwegian Whaling Gazette) 49(1): 12-38. Jan. 1960. [From J. Mamm. 41(4), 1960.] WR 101: 30

Chittleborough, R. G. (C.S.I.R.O., Sydney, Australia.) APPARENT VARIATIONS IN THE MEAN LENGTH OF HUMPBACK WHALES AT PUBERTY. Norsk Hvalfangst-Tidende (Norwegian Whaling Gazette) 49(3): 120-124. Mar. 1960. [From J. Mamm. 41(4), 1960.] WR 101: 30

Cockrill, W. Ross. (Food & Agr. Organisation, Rome, Italy.) PATHOLOGY OF THE CETACEA -- A VETERINARY STUDY OF WHALES. Brit. Vet. J. 116(4): 133-144, (5): 175-190. 1960. [From Biol. Abst. 35(22), 1960.] WR 101: 30
In addition to Antarctic whaling expeditions in 1948-9 and 1951-2, observations are presented on 2 other years including some 12,000 whales. Zoonoses or generalized bacterial infections were not detected. Whales are heavily parasitized both internally and externally.--From abst. by K. L. Bullis.

Dawbin, W. H. (U. Sydney, Sydney, New South Wales.) AN ANALYSIS OF THE NEW ZEALAND CATCHES OF HUMPBACK WHALES FROM 1947 TO 1958. Norsk Hvalfangst-Tidende (Norwegian Whaling Gazette) 49(2): 61-75. Feb. 1960. [From J. Mamm. 41(4), 1960.] WR 101: 30

Laws, Richard M. (Natl. Inst. Oceanography, Wormley, Surrey, United Kingdom.) PROBLEMS OF WHALE CONSERVATION. Trans. 25th N. A. Wildl. Conf. p. 304-319, 3 figs. 1960. WR 101: 31

Owing to the world-wide distribution of whales on the high seas, conservation measures must be based on International agreement. The history of conservation attempts is briefly described leading up to the International Whaling Convention of 1946 which is endangered by recent developments. The most important measures have been complete protection of some species, overall catch quotas, restriction of whaling season, minimum lengths, protection of calves and suckling females, sanctuary areas, and utilization of carcasses. In spite of politico-economic and biological problems which are discussed, there have been important recent advances. Reliable methods of accurate age determination are being worked out, the factors governing distribution are being elucidated, and the responses of whales to exploitation (for instance increased growth and reproductive rates) are becoming better understood. Unfortunately these responses have been inadequate to prevent progressive depletion, owing to the continually increasing intensity of whaling.--From auth. abst.

Maher, William J. (U. Calif., Berkeley.) RECENT RECORDS OF THE CALIFORNIA GREY WHALE (ESCHRICHTIUS GLAUCUS) ALONG THE NORTH COAST OF ALASKA. Arctic 13 (4): 257-265, 2 figs. Dec. 1960. WR 101: 31

Covers the period 1954-9.

Manville, Richard H., and Paul G. Favour, Jr. (US F&WS, Wash., D. C.) SOUTHERN DISTRIBUTION OF THE ATLANTIC WALRUS. J. Mamm. 41(4): 499-503, 1 fig. Nov. 1960. WR 101: 31

This paper summarizes past records of fossil and living walrus specimens along the Atlantic coast south of Labrador. Southernmost fossil was from the coast of Ga. Most recent living specimen was from Bear Cove, Nova Scotia, in 1937.--From auth. abst.

McLaren, I. A., and A. W. Mansfield. (Fisheries Res. Board Can., Montreal.) THE NETTING OF SEA MAMMALS / A REPORT ON THE BELCHER ISLANDS EXPERIMENT, 1960. Fisheries Res. Board Can., Cir. no. 6. 11 p. + 3 maps. Nov. 1960. WR 101: 31

Under theoretical and optimum conditions, hunting from a powered canoe and using present methods produces about 38 ringed seals, 20 bearded seals, and 3 white whales a season or a total of some 4,900 pounds of edible meat. From the results of a netting experiment using nylon nets of 14- and 18-inch mesh, 150 feet long "it is estimated that each well-set net will produce some 2,700 lb of meat in the open water season, without interfering with the other hunting activities of the Belcher Island Eskimos."--From summ.

Moore, Joseph Curtis. NEW RECORDS OF THE GULF-STREAM BEAKED WHALE, MESOPLODON GERVASI, AND SOME TAXONOMIC CONSIDERATIONS. Am. Mus. Novitates 1993: 1-35, illus. 8 Mar. 1960. [From J. Mamm. 41(4), 1960.] WR 101: 31

Naaktgeboren, C., E. J. Slijper, and W. L. van Utrecht. RESEARCHES ON THE PERIOD OF CONCEPTION, DURATION OF GESTATION AND GROWTH OF THE FOETUS IN THE FIN WHALE, BASED ON DATA FROM INTERNATIONAL WHALING STATISTICS. Norsk Hvalfangst-Tidende (Norwegian Whaling Gazette) 49(3): 113-119. Mar. 1960. [From J. Mamm. 41(4), 1960.] WR 101: 31

Thompson, Seton H., and Donald W. Erickson. ALASKA FISHERIES AND FUR-SEAL INDUSTRIES, 1956. USDI, F&WS, Statistical Digest no. 45. v + 88 p., 8 figs. 1960. Available from Supt. Documents at 40¢. WR 101: 31

Pages 69 through 88 are devoted to the Pribilof Islands fur-seal industry. A total of 122,826 fur-seal skins was taken on the Pribilof Islands in 1956--the largest harvest since 1910 when herd management by the Federal Government was initiated.

MAMMALS--OTHER GROUPS

Babero, Bert B. (Southern U., Baton Rouge, La.) FURTHER STUDIES ON HELMINTHS OF THE OPOSSUM, DIDELPHIS VIRGINIANA, WITH A DESCRIPTION OF A NEW SPECIES FROM THIS HOST. J. Parasit. 46(4): 455-463, illus. 1960. [From Biol. Abst. 35(24), 1960.] WR 101: 32

A helminthological survey of opossums was conducted in Ga. Fifteen parasite genera comprising about 17 spp. were recovered.--From auth. abst.

Calaby, J. H. (Wildl. Surv. Sect., C.S.I.R.O., Canberra.) OBSERVATIONS ON THE BANDED ANT-EATER MYRMECOBIUS F. FASCIATUS WATERHOUSE (MARSUPIALIA), WITH PARTICULAR REFERENCE TO ITS FOOD HABITS. Proc. Zool. Soc. London 135(2): 183-207, 3 figs. Oct. 1960. WR 101: 32

Guiler, Eric R. (U. Tasmania, Hobart.) THE POUCH YOUNG OF THE POTOROO. J. Mamm. 41(4): 441-451, 6 figs., 1 pl. Nov. 1960. WR 101: 32

The sequence of the development of the pouch young is described and particular importance is attached to the opening of the eyes which is associated with the development of locomotion. At about 100 days the eyes open, fur appears on the body and the young assumes the juvenile form. A nomogram is given showing the sizes of various structures in relation to age. Graphs of limb growth and relative growth curves both are sigmoid in form.--From auth. abst.

BIRDS--GENERAL

McCabe, Robert A., and James B. Hale. (U. Wis., Madison.) AN ATTEMPT TO ESTABLISH A COLONY OF YELLOW-HEADED BLACKBIRDS. Auk 77(4): 425-432, 1 fig. Oct. 1960. WR 101: 32

Relates the futile attempts to establish yellow-headed blackbirds by transferring eggs and young of this species into the nests of a redwing colony. Redwings readily accepted yellow-head young even when the redwing nest was in the early stages of incubation. Yellow-head eggs were not readily accepted as a substitute for redwing eggs or young (47% successful transfers). During 3 consecutive years the effort resulted in the fledging of 100 yellow-heads. Only 4 *dd* returned to the marsh during the 5-year period following the transfers. --From summ.

Moreau, R. E., editor. [THE CENTENARIAN 'IBIS'.] Ibis 101(1): 1-136, 7 pls. Jan. 1959. WR 101: 32

To celebrate the centennial of THE IBIS this entire issue is devoted to a review of British contributions to ornithology. The following may be of interest to ornithologists: The British approach to ornithology, by E. M. Nicholson; Recollections of some famous British ornithologists, Philip Mason-Bahr; Some British pioneers in ornithological research, 1859-1939, David Lack; The British contribution to the study of bird migration, A. Landsborough Thomson; The British contribution to African ornithology, David A. Bannerman; The British contribution to our knowledge of the living bird, Julian Huxley; The British contribution to Antarctic ornithology, Brian Roberts; The British contribution to bird protection, Phyllis Barclay-Smith; The Zoological Record (Aves), W. P. C. Tenison; and Recent British contributions to scientific ornithology, by N. Tinbergen.--Mary F. Myers.

Nisbet, I. C. T. [AMERICAN PURPLE GALLINULE IN THE ISLES OF SCILLY AND ROSE-BREASTED GROSBEAK IN CO. ANTRIM: BIRDS NEW TO EUROPE.] Brit. Birds 53(4): 145-152, 1 pl. Apr. 1960. WR 101: 32

Records of American birds reported in Europe. Notes are included on the normal ranges, habitats, and life histories of these species.--Mary F. Myers.

Pyman, G. A., compiler. REPORT ON RARE BIRDS IN GREAT BRITAIN AND IRELAND IN 1958. Brit. Birds 53(4): 153-173. Apr. 1960. WR 101: 32

A report by the Rarity Records Committee of acceptable records of over 80 species reported in 1958. Each record includes information on county, locality, number of birds, age and sex if established, whether trapped or if dead, date, and observer. Other relevant data are included when necessary.--Mary F. Myers.

Pyman, G. A., compiler. REPORT ON RARE BIRDS IN GREAT BRITAIN AND IRELAND IN 1959 (WITH 1958 ADDITIONS). Brit. Birds 53(10): 409-431. Oct. 1960. WR 101: 33

A supplementary report to that cited in WR 101: 32. It includes records of 17 species that have been added to the 1958 list and acceptable records of 81 species reported in 1959.--Mary F. Myers.

Williamson, Kenneth, and I. J. Ferguson-Lees. NEARCTIC BIRDS IN GREAT BRITAIN AND IRELAND IN AUTUMN 1958. Brit. Birds 53(9): 369-378. Sept. 1960. WR 101: 33

"A systematic list of the unusually large number of records of Nearctic species in Great Britain and Ireland during the autumn of 1958" is compared to the weather conditions in the North Atlantic at the time. Of the 17 species reported, 14 (36 individuals) are truly Nearctic with normal ranges from western Greenland to Florida.--Mary F. Myers.

BIRDS--MORPHOLOGY, PHYSIOLOGY, BEHAVIOR, MIGRATION

Armstrong, Edward A. NOTES ON THE WREN IN THE ARAN ISLANDS. Brit. Birds 51(1): 29-35. Jan. 1958. WR 101: 33

The breeding behavior of wrens by habitat type is discussed. Birds breeding in northern bleak areas tend to be monogamous and the ♂ assists in caring for the young. In the "mainland" fertile areas, they tend toward polygamy, build auxiliary nests, have a prolonged period of song, and normally rear second broods. The wrens of the Aran Islands have an intermediate behavior pattern illustrating some of the characteristics of both habitats.--Mary F. Myers.

Baerends, G. P. THE ETHOLOGICAL ANALYSIS OF INCUBATION BEHAVIOUR. Ibis 101(3-4): 357-368, 1 fig. July-Oct. 1959. WR 101: 33

"An integrative survey of behaviour mechanisms in birds, known to contribute to securing the proper conditions for the development of eggs during incubation, [is discussed].... Several other activities of fixed-pattern type can be observed...[and] can be proved to have causal factors in common.... Inhibitive as well as stimulative relations between instincts have been found."--From auth. summ.

Barry, Michael. OBSERVATIONS FROM A LIGHT-VESSEL ON PASSERINE IMMIGRATION INTO THE WASH IN AUTUMN 1956. Brit. Birds 53(10): 435-443, 1 fig. Oct. 1960. WR 101: 33

Light-vessel observations of the arrival of winter visitors in the Wash are described. One large group of birds had probably made the long sea crossing directly from Scandinavia. The value of light-vessel observation is considered as a supplement to coastal observation and the use of radar.--Mary F. Myers.

Bergman, G. ÜBER NEUE FUTTERGEWOHNHEITEN DER MÖWEN AN DEN KÜSTEN FINNLANDS. [NEW FEEDING HABITS OF GULLS ON THE COAST OF FINNLAND.] Ornis Fennica 37(1/2): 11-28. 1960. [From Biol. Abst. 36(1), 1961.] WR 101: 33

[In German.] Larus argentatus is described as becoming more dependent upon food derived from the land than from the sea. Feeding habits described include stealing fish and, more recently bivalves from ducks and pursuing other gulls until the contents of the crop are regurgitated. It is felt that this parasitic habit is transferred from L. argentatus to other gull species by imitation. --D. E. Davis.

Betts, Monica M. (Edward Grey Inst., Oxford, Eng.) THE BEHAVIOUR OF ADULT TITS TOWARDS OTHER BIRDS AND MAMMALS NEAR THE NEST. Brit. Birds 51(11): 426-429. Nov. 1958. WR 101: 33

Nest-box observations were made from attached blinds. In general, adults paid little attention to other passerines near the nest. However, sparrowhawks, jays, woodpigeons, woodpeckers, owls, red squirrels, and man often elicited alarm, aggressive behavior, or both.--Mary F. Myers.

Bourne, W. R. P. NOTES ON AUTUMN MIGRATION IN THE MIDDLE EAST. Ibis 101 (2): 170-176. Apr. 1959. WR 101: 34

Notes were made on autumn migrants in Jordan and Iraq in the late autumn of 1956. Three movements were distinguished: a trans-desert passage of passerines and water birds, local movements of larks and sand-grouse, and incursions of northerly winter visitors. Some factors affecting the movements are discussed. --Mary F. Myers.

Buttiker, W. ARTIFICIAL NESTING DEVICES IN SOUTHERN AFRICA. Ostrich 31 (2): 39-48. 1960. [From Biol. Abst. 35(23), 1960.] WR 101: 34

Members of 17 families, particularly the Sturnidae, Passendae, Picidae, Bucerotidae, Capitonidae are apt to accept artificial devices for breeding purposes.--D. E. Davis.

Chisholm, A. H. (Sydney, New South Wales.) FURTHER NOTES ON ANTING. Emu 60(2): 131-133. May 1960. WR 101: 34

Since the publication of THE HISTORY OF ANTING, another 4 species have been added to the list of 27 species recorded as practicing anting in Australia. Observations and comments on their behavior are presented. [See WR 97: 46.]--Mary F. Myers.

Coombs, C. J. F. OBSERVATIONS ON THE ROOK CORVUS FRUGILEUS IN SOUTHWEST CORNWALL. Ibis 102(3): 394-419, 9 figs. July 1960. WR 101: 34

Information is given on the seasonal changes in gonad histology, changes in behavior, display postures, song, copulation, pair bond, territory, nest site and nest building, feeding the incubating ♀ and the young, nest sanitation, juveniles, and relationships with other species.--Mary F. Myers.

Coulson, J. C. (U. of Durham, England.) THE PLUMAGE AND LEG COLOR OF THE KITTIWAKE AND COMMENTS ON THE NON-BREEDING POPULATION. Brit. Birds 52(6): 189-196, 2 figs. June 1959. WR 101: 34

Coulson, J. C., and E. White. (Durham Coll., U. Durham, England.) THE EFFECT OF AGE AND DENSITY OF BREEDING BIRDS ON THE TIME OF BREEDING OF THE KITTIWAKE RISSA TRIDACTYLA. Ibis 102(1): 71-86, 8 figs. Jan. 1960. WR 101: 34

In a 1951-8 study breeding colonies of kittiwakes were observed. Females breeding for the first time bred 9.8 days later than those breeding for at least the fourth time. The age composition of the colonies was determined. The established colonies had less than 25% of the birds breeding for the first time. Young colonies had a much higher proportion of first year breeders. Time of breeding was directly related to the density of breeding birds. Time of return to the colonies also appeared to be related to density.--From auth. summ.

Cramp, S., A. Pettet, and J. T. R. Sharrock. THE IRRUPTION OF TITS IN AUTUMN 1957. Brit. Birds 53(2): 49-77; (3): 99-117; (4): 176-192; 12 figs. Feb.-Apr. 1960. WR 101: 34

In 1957, increases and invasions of 4 species of tits were noted in the British Isles and nw Europe after the breeding season. The irruption was marked by an increase in the opening of milk bottles and paper tearing by tits. Movements during the fall were mainly northerly and westerly. Return movements in the spring were between east and southwest. The irruption was probably due to the high numbers surviving the mild winter of 1956-7.--Mary F. Myers.

Crook, John Hurrell. (Ornith. Field Sta., Madingley, England.) NEST FORM AND CONSTRUCTION IN CERTAIN WEST AFRICAN WEAVER-BIRDS. Ibis 102(1): 1-25, 11 figs. Jan. 1960. WR 101: 34

"Ploceine nests are small globes with entrances at the side or below with or without some extension of the entrance into a spout or tube." The bird first constructs an initial ring in which he then sits to build the rest of the nest. Four nest types are: globular, kidney-shaped, incomplete kidney-shaped, and retort-shaped. Nest construction is described in detail for 2 species. Evolution of nest form and building behavior are discussed.--Mary F. Myers.

Davis, John. (Hastings Reservation, U. Calif., Carmel Valley.) NESTING BEHAVIOR OF THE RUFOUS-SIDED TOWHEE IN COASTAL CALIFORNIA. Condor 62(6): 434-456, 2 figs. Nov.-Dec. 1960. WR 101: 35
Detailed study based on 25 nests.

Goodacre, M. J., and David Lack. (Edward Grey Inst., Oxford, England.) BARLY BREEDING IN 1957. Brit. Birds 52(3): 74-83. Mar. 1959. WR 101: 35
"Following the unusually mild winter and early spring of 1957...many... species of diverse families almost certainly bred earlier than usual.... Temperature perhaps acts directly on the birds, rather than through its influence on the vegetation."--From auth. summ.

Harper, W. G. ROOSTING MOVEMENTS OF BIRDS AND MIGRATION DEPARTURES FROM ROOSTS AS SEEN BY RADAR. Ibis 101(2): 201-208, 5 figs. Apr. 1959. WR 101: 35
"Unusual radar echoes attributable to the roosting movements of large flocks of birds, and to departures from roosts on migration flight are illustrated. Radar [showed a]...much more rapid break-up of flocks on migration at night than by day."--From auth. summ.

Hemmingsen, Axel M. (Strødam Biol. Lab., Hillerød, Denmark.) THE ALLEGED RELATION OF BIRD MIGRATION AND EMIGRATION, ESPECIALLY OF PALLAS' SAND GROUSE (SYRRHAPTES PARADOXUS PALL.) TO THE SUNSPOT CYCLES. Vidensk. Meddel. Dansk Naturhist. For. København 121: 1-51, map. 1959. [From Biol. Abst. 35(22), 1960.] WR 101: 35
There is apparently a tendency for the irruptions of S. paradoxus into Europe, West Siberia, northeastern China, Manchuria, and the Amur Region during the last century to have coincided preferably with either sunspot maxima or minima. Pallas' sand grouse undertakes both emigrations (1) mainly directed towards West, North-West, North and North-East, comparable to extension of its normal spring migration and often leading to breeding in the invaded areas, (2) emigrations mainly directed towards the South, South-East or East and comparable to an extension of its normal autumn migration, and (3) emigrations that cannot be placed in any of these categories. The coincidence in time of irruptions of Pallas' sand grouse in widely different areas suggests that snow and ice in its ordinary quarters cannot, in all cases, be the sole cause of the emigrations. Food shortage may be the common ultimate factor. Various possible proximate factors are discussed, such as immediate food shortage due to droughts or snow, snow-melting as such, and over-crowding.--From auth. summ.

Hewson, Raymond. SOCIAL FLYING OF RAVENS. Brit. Birds 50(10): 432-434. Oct. 1957. WR 101: 35
A report of the social flying of ravens. The stimulus to gatherings is probably the sight of one or more ravens flying in a thermal or up-current over a ridge or hilltop where they command a wide field of view. Other ravens join, and the group as a whole circles and soars gaining height until at an altitude of 1000 ft. or more, they then disperse into pairs or groups and go off in different directions.--Mary F. Myers.

Hinde, R. A. MOTIVATION. Ibis 101(3-4): 353-357. July-Oct. 1959. WR 101: 35
"The value of unitary drive-concepts has been proven many times in the past.... The evidence reviewed...suggests, however, that they have their limitations."--From auth. conclusion.

Jansson, Karl-Erik. (Storgatan 59 A, Tranås, Sweden.) NAGRA SIFFROR OCH RON FRÅN SJU ÅRS STUDIER AV SMÅFÅGLAR HÄCKANDE I HOLKAR. [SOME OBSERVATIONS FROM SEVEN YEARS' STUDY OF NEST BOXES.] Vår Fågelvärld 19(2): 127-136, illus. 1960. [From Biol. Abst. 35(20), 1960.] WR 101: 35
In Swedish with English summary. The author studied the breeding in about 50 nest-boxes during the years 1948 to 1954. The most frequent spp. were the pied flycatcher, the great and the blue tit. A considerable amount of breeding data concerning these spp. was accumulated and is presented in tables.--Auth. summ.

Jenö, Tomasz. ADATOK A BALKÁNI GERLE ÖKOLÓGIÁJÁKOZ. [CONTRIBUTIONS TO THE ECOLOGY OF THE INDIAN RING-DOVE.] Aquila 59-62: 101-143. 1952-1955. [From Biol. Abst. 35(24), 1960.] WR 101: 36
[In Hungarian] with English summary.

Lack, David. (Edward Grey Inst., Oxford, England.) MIGRATION ACROSS THE NORTH SEA STUDIED BY RADAR. PART 1. SURVEY THROUGH THE YEAR. Ibis 101(2): 209-234, 2 figs., 1 pl. Apr. 1959. WR 101: 36
Large movements across the North Sea are most frequent in Mar., Apr., and Nov. Most movements are east between Jan. and May, west in June and July, and west or southwest during the rest of the year. Information was obtained about the huge eastward emigrations in the spring, the southwest movement in late autumn from Scandinavia, and the eastward movement after drifted arrivals. There is indication of a stronger migratory urge in spring than autumn, but westerly winds may deter migration in autumn because of associated rain and other unfavorable conditions.--From auth. summ.

Lack, David. (Edward Grey Inst., Oxford, England.) WATCHING MIGRATION BY RADAR. Brit. Birds 52(8): 258-267, 3 figs. Aug. 1959. WR 101: 36
A history of bird-detection by radar is presented followed by descriptions of bird-echoes under different conditions. The main ornithological findings are reviewed.--From auth. summ.

Lack, David. (Edward Grey Inst., Oxford, England.) MIGRATION ACROSS THE SEA. Ibis 101(3-4): 374-399. July-Oct. 1959. WR 101: 36
"Small passerine species regularly migrate across at least 600 miles of sea, and some take longer journeys.... Pre-migratory fat seems enough for a continuous flight of 24-36 hours and perhaps more.... Diurnal migrants tend to coast into the wind before setting out to sea [especially in unfavorable weather]. Their following of coasts has no 'guiding' significance.... Night-migrants do not normally follow coastlines. The track of migrants over the sea...is normally the resultant between their heading and the wind.... In overcast weather at sea migrants can sometimes maintain their heading, while at other times they are disoriented.... Redetermined movements occur after drifted migrants have landed." [More than 140 references are given.]--From auth. summ.

Lack, David. (Edward Grey Inst., Oxford, England.) THE HEIGHT OF BIRD MIGRATION. British Birds 53(1): 5-10, 1 fig. Jan. 1960. WR 101: 36
Summary: "1) The common passerine winter visitors to Britain migrate mainly below 5,000 feet. They tend to fly higher in spring than in autumn, and higher by night than by day. Occasional individuals were recorded up to 14,000 feet. 2) Very small passerine night-migrants in September were recorded up to 21,000 feet. 3) Waders, mainly lapwings (Vanellus vanellus), travel at a more constant height than passerines, nearly all the echoes on any one movement being within 2,000 feet of each other, with a few somewhat higher. Most movements occurred between 3,000 and 6,000 feet, and the highest echo was at 11,000 feet. 4) The problem of how birds determine their altitude is raised."

Lack, David. (Edward Grey Inst., Oxford, England.) MIGRATION ACROSS THE NORTH SEA STUDIED BY RADAR. PART 2. THE SPRING DEPARTURE 1956-59. Ibis 102 (1): 26-57, 4 figs., 1 pl. Jan. 1960. WR 101: 36
The eastward emigration across the North Sea between Feb. and Apr. was studied for 4 years. Hours of greatest numbers of bird-echoes, factors influencing the volume of migration, the height of migration, and directional and positional relationships are discussed.--Mary F. Myers.

Lack, David. (Edward Grey Inst., Oxford, England.) AUTUMN "DRIFT-MIGRATION" ON THE ENGLISH EAST COAST. Brit. Birds 53(8): 325-352; 53(9): 379-397. Aug.-Sept. 1960. WR 101: 36
"Most big and moderate arrivals occurred with an anticyclone in Scandinavia and strong south-easterly winds in the southern North Sea.... At least in the area studied, there is no need to postulate that 'down-wind directed drift' occurs, or that drift-movements are an adaptation enabling migrants disoriented by overcast at sea to regain the land as quickly as possible."--Mary F. Myers.

Lockie, J. D. (Nature Conservancy, 12 Hope Terrace, Edinburgh.) THE FOOD OF NESTLING ROOKS NEAR OXFORD. Brit. Birds 52(10-11): 332-334. Oct.-Nov. 1959. WR 101: 37

Food taken by nestlings during the first 3 weeks of life included various species of earthworms, crane-fly larvae, caterpillars, ground beetles, weevils, lycosid spiders, and grains. Proportions varied annually, and between rookeries.--Mary F. Myers.

Marchant, S. THE BREEDING SEASON IN S.W. ECUADOR. Ibis 101(2): 137-152, 1 fig. Apr. 1959. WR 101: 37

"The breeding season on the Santa Elena peninsula in S.W. Ecuador is described on the basis of 1761 nests found in the four years 1955 to 1958. The environment and climate are outlined.... The general breeding season is closely correlated with the rainfall.... Annual differences in amount of breeding by the same species are thought not to be entirely due to differences in weather between years." [See Lloyd WR 101: 7.]--From auth. summ.

Marchant, S. THE BREEDING OF SOME S.W. ECUADORIAN BIRDS. Ibis 102(3): 349-382, July 1960; 102(4): 584-599, Oct. 1960. WR 101: 37

A presentation of life histories of about 40 species of sw Ecuadorian birds. Species accounts give information on nest site, nest, eggs, clutch-size, incubation, nestling period, breeding success, and breeding season. Of the 150 references given, 19 are marked as having valuable information on the breeding of many species of American birds.--Mary F. Myers.

Marshall, A. J. (St. Bartholomew's Med. Coll., U. London, England.) INTERNAL AND ENVIRONMENTAL CONTROL OF BREEDING. Ibis 101(3-4): 456-478. July-Oct. 1959. WR 101: 37

The possible neuro-endrocrine basis of the regeneration, acceleration and culmination phases of reproduction is discussed with respect to internal regulation of breeding. The external factors affecting reproduction which are discussed are light, temperature, rainfall, breeding area, territory, nesting site and materials, food supply, and behavioral interactions. "No single over-all factor (such as day-length) is responsible for the timing of avian breeding seasons." About 150 references are given.--Mary F. Myers.

McCann, Lester J. (Coll. St. Thomas, St. Paul, Minn.) GRIT AS AN ECOLOGICAL FACTOR. Am. Midl. Nat. 65(1): 187-192, 2 figs. Jan. 1961. WR 101: 37

Abstract: The pheasant, a highly granivorous species, succeeds best in areas of high calcium concentration. Grains are normally low in calcium content, hence lime-containing grits act as a necessary source of this element. Gravel of the proper chemical composition is particularly significant in the diet of growing birds, and probably for hens during the laying season. Recently glaciated regions where the till possesses high calcium characteristics represent the most suitable pheasant ranges. An example of this is the Minnesota, Dakota and northern Iowa area. The indications are that grit possessing large amounts of magnesium, even though adequate in calcium, is undesirable and may even be deleterious.

McCartin, Leontia. (U. Coll. of Wales, Aberystwyth.) THE WRECK OF THE KITTIWAKES IN EARLY 1957. Brit. Birds 51(7): 253-266, 1 fig. July 1958. WR 101: 37

The wreck of the kittiwakes during Feb.-Mar. 1957 was apparently the first of its kind in the British Isles. The cause was probably the westerly gales which swept the Atlantic during the preceding weeks. The birds were found in weakened condition or dead, probably due to starvation.--Mary F. Myers.

McLean, Ivor, and Kenneth Williamson. MIGRANTS AT STATION "JULIETT" IN SEPTEMBER 1959. Brit. Birds 53(5): 215-219. May 1960. WR 101: 37

In Sept. 1959, ten species of land-birds, drifted by anticyclonic winds, were observed at a weather ship 400 miles west of Ireland. Records of migrant terns and phalaropes are also given.--Mary F. Myers.

Newton, Ian. THE DIET AND FEEDING HABITS OF THE BULLFINCH. Bird Study 7 (1): 1-9. Mar. 1960. WR 101: 38

An account of more than 1000 sight observations of the foods eaten by the bullfinch. The diet consists mainly of buds in spring, insects in early summer, berries in autumn, and seeds during late summer and winter. Seeds most frequently recorded are those of birch, ash, and meadowsweet.--Mary F. Myers.

Pielowski, Z. (Zaklad Ekol., PAN, Poland.) STUDIES ON THE RELATIONSHIP: PREDATOR (GOSHAWK) - PREY (PIGEON). Bul. Acad. Polonaise Sci. Ser. Sci. Biol. 7(10): 401-403. 1959. [From Biol. Abst. 35(20), 1960.] WR 101: 38

Kampinoski Natl. Park near Warsaw contains 6 goshawk families, which feed predominantly on nearby pigeon flocks, consisting of 87.4% white pigeons, and 12.6% dark pigeons. Proportion of pigeons captured by goshawks, as measured by color of remnants collected is 39.6% white and 60.4% dark. A dovecote was established in the forest, consisting of 3 white and 18 dark pigeons. Attacks of goshawks on this flock consisted of 36 pursuits of white pigeons and 32 pursuits of dark pigeons, indicating that while selection of a color by hawks is deliberate, color chosen is that of minority of flock, which stand out from the remainder. This is an example of one of the processes which promotes elimination of "different" individuals and which exemplifies unifying effects of natural selection.--MDS.

Richards, T. J. CONCEALMENT AND RECOVERY OF FOOD BY BIRDS WITH SOME RELEVANT OBSERVATIONS ON SQUIRRELS. Brit. Birds 51(12): 497-508. Dec. 1958. WR 101: 38

A summary of observations made between 1948-57 on the food storing behavior of the coal tit, marsh tit, nuthatch, and rook.--Mary F. Myers.

Royama, Tomoo. (U. Toyko, Japan.) TEST OF AN AUTOMATIC NEST-RECORDER. Brit. Birds 52(9): 295-302, 4 figs. Sept. 1959. WR 101: 38

"An automatic nest-recorder [is described which] was designed for the purpose of recording the visiting activities of male and female birds separately.... The data obtained for the last five days of the fledging period were analysed to illustrate the uses of the apparatus in recording visiting frequencies, daily rhythms, the durations of periods at the nest, the times of the first and last visits each day, and the hours when the young left."--Auth. summ.

Ryabov, V. F., editor. WORKS OF THE BUREAU OF BIRD BANDING / SELECTED ARTICLES FROM ISSUE VIII. [1955.] Ministry Agr., USSR (Moscow). iv + 23 p., 4 figs. 1960. Published for the Natl. Science Foundation and the Dept. Interior by The Israel Program for Scientific Translations. [Available from the Office of Technical Services, U. S. Dept. Commerce, Washington 25, D. C. Price $0.50.] WR 101: 38

Translated from Russian. In addition to an introductory section, there are papers entitled: Birdbanding in the USSR, Problems Encountered in the Study of the Seasonal Migration of Birds, and Investigation of Gastrolithes as a Method of Studying Seasonal Migrations. Soviet ornithologists have been banding from 60,000 to 100,000 birds of more than 300 species annually. The "Problems" paper deals with banding techniques and other methods of bird-marking--the use of dyes and feather clipping. Observations of the composition and quantity of bird's gastrolithes aided in the study of the dynamics of movement, in the process of the substitution of local individuals by birds of passage, and as an indication of a bird's point of departure.

Seel, David C. THE BEHAVIOUR OF A PAIR OF HOUSE SPARROWS WHILE REARING YOUNG. Brit. Birds 53(7): 303-310, 3 figs. July 1960. WR 101: 38

Report of an intensive short-term study during 1959 of a pair of house sparrows rearing young. Information is given on the sexual differences noted in feeding; the rate of feeding, brooding, nest-sanitation, and roosting of the adults.--Mary F. Myers.

Simmons, K. E. L. A REVIEW OF THE ANTING-BEHAVIOUR OF PASSERINE BIRDS. Brit. Birds 50(10): 401-424, 8 figs., 6 pls. Oct. 1957. WR 101: 39
"A critical review, with bibliography, of the anting-behaviour of birds." The 2 principal forms of anting, active and passive, and their variations are discussed in detail.--Mary F. Myers.

Simmons, K. E. L. ANTING MOVEMENTS AND THEIR RELATIONSHIP TO CERTAIN OTHER BEHAVIOUR PATTERNS. Ibis 101(3-4): 368-372. July-Oct. 1959. WR 101: 39
The anting movements of 9 passerine species were studied. The birds applied acid-spraying formicine ants to the plumage with the bill. The direct result of this behavior is the anointing of the wing-tip with formic acid. Anting is apparently a "feather maintenance" activity. Formic acid possibly supplements the natural preen-oil but the exact function of the anointing is still unknown. --Mary F. Myers.

Simmons, K. E. L., and others. NOTES ON ANTING BY BRITISH PASSERINE BIRDS IN THE WILD. Brit. Birds 53(1): 11-25. Jan. 1960. WR 101: 39
An introduction to and comments on 14 notes on anting. Since most observations have been made on captive birds, these notes contribute to our knowledge of anting in nature.--Mary F. Myers.

Smith, K. D. THE PASSAGE OF PALAEARCTIC MIGRANTS THROUGH ERITREA. Ibis 102(4): 536-544. Oct. 1960. WR 101: 39
Summary: The vegetation and climate of Eritrea are described, and passage migrants and winter visitors are listed according to status and altitudinal range.

Spencer, Robert. PROGRESS AND PROSPECTS IN RINGING. Ibis 101(3-4): 416-424. July-Oct. 1959. WR 101: 39
The main features of the first fifty years of British bird-banding are described. Recovery rates and future banding projects are discussed. Propaganda campaigns are suggested to promote international co-operation in reporting of recovered banded birds.--From auth. summ.

Stokes, Allen W. (Utah State U., Logan.) NEST-SITE SELECTION AND COURTSHIP BEHAVIOUR OF THE BLUE TIT PARUS CAERULEUS. Ibis 102(4): 507-519. Oct. 1960. WR 101: 39
"This study describes the courtship behaviour of Blue Tits Parus caeruleus from nest selection to incubation." An attempt is made to explain behavior in terms of the factors causing it.--Mary F. Myers.

Thomson, A. Landsborough. THE MIGRATIONS OF BRITISH HAWKS (ACCIPITRIDAE) AS SHOWN BY RINGING RESULTS. Brit. Birds 51(3): 85-93. Mar. 1958. WR 101: 39
An analysis of the recovery records of birds banded in the British Isles and abroad. Eight species of hawks are discussed with respect to their movement.--Mary F. Myers.

Thorpe, W. H. LEARNING. Ibis 101(3-4): 337-353. July-Oct. 1959. WR 101: 39
An evaluation of recent studies of the learning ability of birds and an attempt to relate them to present knowledge and theories concerning individually modifiable behavior in animals. Recent work on habituation or response-waning, trial-and-error learning and its complement "instrumental" or "action" conditioning, imprinting, and problems on social facilitation are discussed.--Mary F. Myers.

Wayne, Philip, and G. F. Jolly. NOTES ON THE BREEDING OF THE ICELAND GYR FALCON. Brit. Birds 51(8): 285-290. Aug. 1958. WR 101: 39
Observations on the breeding ecology of the Iceland gyr falcon in 1956 are discussed. The gyr breeds earlier than ptarmigans and ducks which are the principal foods. The young are fed adult ptarmigan by both parents. The method of hunting and treating kills is discussed.--Mary F. Myers.

Williamson, Kenneth. BERGMANN'S RULE AND OBLIGATORY OVERSEAS MIGRATION. Brit. Birds 51(6): 209-232, 10 figs. June 1958. WR 101: 40

The selective influences contributing to Bergmann's Rule are discussed in relation to the overseas migration of land birds. It is proposed that the selection is most powerful during the actual migration.--From auth. summ.

Williamson, Kenneth. JUVENILE AND WINTER PLUMAGES OF THE MARSH TERNS. Brit. Birds 53(6): 243-252, 2 figs. June 1960. WR 101: 40

Characters which may prove effective in distinguishing the three marsh terns--black, white-winged black, and whiskered terns in juvenile, first-winter and adult winter plumages--are discussed with regard to museum examination and field notes. The main points are summarized in a table.--Mary F. Myers.

Wilson, A. C., and Donald S. Farner. (Wash. State U., Pullman.) THE ANNUAL CYCLE OF THYROID ACTIVITY IN WHITE-CROWNED SPARROWS OF EASTERN WASHINGTON. Condor 62(6): 414-425, 1 fig. Nov.-Dec. 1960. WR 101: 40

Thyroid activity of white-crowned sparrows studied was high in autumn and winter, intermediate in spring, and low in summer. "Attention is drawn to the fact that the majority of passerine birds hitherto investigated do not give histological evidence of high thyroid activity in cold winters. Attention is also drawn to the great variation, among reports on various passerine species, concerning possible roles of thyroid activity during molt, reproductive activity, and migration."--From auth. summ.

BIRDS--MANUALS, FAUNAS, COMMUNITIES

Boyd, J. Morton. (Nat. Conservancy, Edinburgh.) THE BIRDS OF TIREE AND COLL. Brit. Birds 51(2): 41-56, 3 figs., 3 pls. and (3): 103-118. Feb.-Mar. 1958. WR 101: 40

A brief discussion of the geography and ecology of the islands is followed by a species list including seasons present, breeding records, and a review of status during the rest of the year. A 6-page summary table gives information for each of the 176 species recorded for the period 1892-1956.--Mary F. Myers.

Gallagher, M. D. BIRD NOTES FROM CHRISTMAS ISLAND, PACIFIC OCEAN. Ibis 102(4): 489-502, 1 fig. Oct. 1960. WR 101: 40

"Christmas Island, Pacific Ocean, is described, with notes on the soil, climate and vegetation. Notes are given of 27 species of birds seen on the island.... The total includes 17 sea-birds, 2 resident land-birds and 8 migrants. Breeding seasons vary greatly between species--all the year round, with or without peaks, and/or with variation between colonies; one restricted breeding season, or two restricted breeding seasons."--Auth. summ.

Holgersen, Holger. FUGL I NORSKE BILAND. 2. BOUVET-ØYA. [BIRDS IN THE NORWEGIAN PENINSULA. 2. BOUVET ISLAND.] Sterna [Stavanger Mus.] 4(1): 1-9, illus. 1960. [From Biol. Abst. 35(22), 1960.] WR 101: 40

In Norwegian. A short review of the present knowledge of the avifauna of this Norwegian island. Six spp. are known to breed, and 6 have been recorded as visitors. A list is given.

Hollom, P. A. D. NOTES FROM JORDAN, LEBANON, SYRIA AND ANTIOCH. Ibis 101 (2): 183-200. Apr. 1959. WR 101: 40

Notes on habitat, distribution and field-characters were made on about 80 species of birds of the Near East. The appendix lists 49 other species of water birds and 51 species of land birds seen.--Mary F. Myers.

Kessel, Brina, and George B. Schaller. (U. Alaska, College.) BIRDS OF THE UPPER SHEENJEK VALLEY, NORTHEASTERN ALASKA. Biol. Pap. U. Alaska no. 4. 59 p., 11 figs. May 1960. 75¢. WR 101: 40

Includes a description of the physiography, climate, vegetation, and phenology of the region followed by an annotated list of 86 spp. of birds identified.

Myrberget, Svein. FUGLELIV PÅ HELGELANDSKYSTEN. [BIRD NOTES FROM THE COAST OF HELGELAND, NORTH NORWAY.] Sterna [Stavanger Mus.] 3(8): 321-339, illus. 1959. [From Biol. Abst. 35(22), 1960.] WR 101: 41

In Norwegian. Observations on the bird life of the islands Alsten, Dønna, and Lovunden (about 66° N. latitude) in 1942-57. A list of spp. observed is given, totalling 151 spp., of which 87 breed more or less regularly, and 10 more may be breeding, while 42 spp. are considered visitors--foreign breeding birds or Norwegian birds migrating from other districts.--From auth. summ.

Nicholson, E. M., I. J. Ferguson-Lees, and P. A. D. Hollom. (30 St. Leonard's Ave., Bedford, England.) THE CAMARGUE AND THE COTO DONANA. Brit. Birds 50(12): 497-519, 12 pls. Dec. 1957. WR 101: 41

These 2 coastal areas of sw Europe are outstanding for the wealth of their bird life and of habitats that have largely been destroyed elsewhere. The geography, topography, and bird fauna of the 2 areas are discussed. An extensive table lists the birds composing the main breeding populations in the Camargue in s France and the Coto Doñana in sw Spain. It compares the breeding populations of individual species of these areas with those of Britain. [This paper is the 1st of 3 in a series. See Valverde WR 101: 5 and Hoffmann WR 101: 5.]--Mary F. Myers.

Partridge, William H. OBSERVACIONES SOBRE AVES DE LAS PROVINCIAS DE CÓRDOBA Y SAN LUIS. [OBSERVATIONS ON BIRDS OF THE PROVINCES OF CÓRDOBA AND SAN LUIS.] Hornero 10(1): 23-73, illus., maps. 1953 [rec. 1960]. [From Biol. Abst. 35(22), 1960.] WR 101: 41

In Spanish. The physiography is described with lists of the birds taken or observed at several different localities. Notes are given on a total of 88 spp. and sspp., none new.

Passburg, Rolf E. BIRD NOTES FROM NORTHERN IRAN. Ibis 101(2): 153-169, 1 fig. Apr. 1959. WR 101: 41

"Notes are given on the habits and habitats of 274 species observed in the course of three years, mainly round Tehran and the southern shores of the Caspian."--Auth. summ.

Smith, M. Q. NOTES ON THE BIRDS OF THE TREBIZOND-AREA OF TURKEY. Ibis 102 (4): 576-583. Oct. 1960. WR 101: 41

A species list of 132 species of birds observed incidentally during 2 seasons of archaeological work in Turkey.--Mary F. Myers.

Terres, John K., compiler. AVAILABLE FIELD CHECK-LISTS OF BIRDS--CANADA AND THE UNITED STATES. Audubon Mag. 63(1): 44-47, 62, 64. Jan.-Feb. 1961. WR 101: 41

Lists local check-lists by state or province, their prices, and where one may get them. Reprints of the article which features check-lists for Central America, the West Indies, and Europe are available from the Service Dept. of the Natl. Audubon Society, 1130 Fifth Ave., N. Y. 28, at $0.25.

Winterbottom, J. M. THE ZOO-GEOGRAPHICAL AFFINITIES OF THE AVIFAUNA OF THE WESTERN CAPE PROVINCE. Ibis 102(3): 383-393, 1 fig. July 1960. WR 101: 41

The South African area under consideration has 3 avifaunal divisions: winter-rainfall area, temperate forest, and karoo. The affinities of the winter-rainfall and karoo are with the "Southwest Arid zone" and those of the temperate forest are with the "East Coast." Major species found in each area are given.--Mary F. Myers.

BIRDS--POPULATIONS & FLUCTUATIONS

Amman, Gene D., and Paul H. Baldwin. (SE For. Exp. Sta., Asheville, N. C.) A COMPARISON OF METHODS FOR CENSUSING WOODPECKERS IN SPRUCE-FIR FORESTS OF COLORADO. Ecology 41(4): 699-706, 3 figs. Oct. 1960. WR 101: 42

Nine methods were used to census woodpeckers in 3 areas of spruce-fir forest. These methods were compared on the basis of field operation, completeness of count, and variation in results. The method found best (with moderately large woodpecker populations) was the variable-width-strip method utilizing the greatest distance of each species for half the width of strip censused, then adding the 3 separate population estimates for total population.--From summ.

Ash, J. S. BIRDS OF PREY NUMBERS ON A HAMPSHIRE GAME-PRESERVE DURING 1952-1959. Brit. Birds 53(7): 285-300. July 1960. WR 101: 42

"Over 2,000 birds of prey were counted in a total of over 5,000 hours' observation in the period 1952-1959 on a 4,000-acre game-preserve in Hampshire." Ranking of the species was as follows: kestrel, buzzard, sparrowhawk, hen harrier, merlin, Montagu's harrier, hobby, peregrine, marsh harrier and goshawk. "Sparrowhawks, Merlins, Hen Harriers, Peregrines and Hobbies decreased; Buzzards and Kestrels fluctuated in numbers; Montagu's Harriers increased. Marsh Harrier and Goshawks were vagrants." Comments on habits, food, effects on game-birds and possible causes of change in status are given. --From auth. summ.

Boyd, J. Morton. (The Nature Conservancy, Edinburgh.) THE DISTRIBUTION AND NUMBERS OF KITTIWAKES AND GUILLEMOTS AT ST. KILDA. Brit. Birds 53(6): 252-264, 2 figs., 2 pls. June 1960. WR 101: 42

In May 1959 all parts of the coast of all of the islands were visited and the positions and numbers of all colonies of these 2 spp. were plotted. There were 7,660 pairs of kittiwakes in 85 colonies. Most colonies were of about 50 pairs but 3 colonies accounted for 20% of the pairs. About 13,850 pairs of guillemots were in 112 colonies. Most colonies were about 50 pairs but 9 colonies accounted for 47% of the pairs. Of the 197 colonies, 125 were involved in association with the other species. "A factor in this association may be the social stimulus each species derives from the presence of the other."--Mary F. Myers.

Gibb, John A. (Anim. Ecol. Sect., D.S.I.R., P. O. Box 8018, Wellington, New Zealand.) POPULATIONS OF TITS AND GOLDCRESTS AND THEIR FOOD SUPPLY IN PINE PLANTATIONS. Ibis 102(2): 163-208, 15 figs. Apr. 1960. WR 101: 42

A 5-year study "to test the hypothesis that populations of tits (Paridae) and goldcrests Regulus regulus are controlled by food shortage; and secondarily to assess the impact of bird predation on populations of forest insects." The study confirmed that tit populations are controlled by food shortages. It was also determined that the birds helped to stabilize forest insect populations.--Mary F. Myers.

Norris, C. A. THE BREEDING DISTRIBUTION OF THIRTY BIRD SPECIES IN 1952. Bird Study 7(3): 129-184, 36 figs. Sept. 1960. WR 101: 42

During a National Inquiry competent observers were asked to indicate the numerical status of these 30 species in units of 25 sq km National Grid squares. The best coverage was obtained in central and southeast England. Results, presented in a series of maps, give a broad picture of distribution and could form a basis for a comparative study of distribution.--Mary F. Myers.

Williamson, Kenneth. POPULATION AND BREEDING ENVIRONMENT OF THE ST. KILDA AND FAIR ISLE WRENS. Brit. Birds 51(10): 369-393, 3 figs., 3 pls. Oct. 1958. WR 101: 42

Analysis of a census of dawn-singing ♂ wrens and comparison of their respective adaptations is attempted. The distribution is not uniform, neither in the village habitat nor in the coastal cliff habitat. Densities indicate a minimum territory-size of 10,000 sq yards and maximum of 19,000 sq yards. The difference in habitat selection of the 2 species may be due to different food preferences.--Mary F. Myers.

Wynne-Edwards, V. C. THE CONTROL OF POPULATION-DENSITY THROUGH SOCIAL BEHAVIOUR: A HYPOTHESIS. Ibis 101(3-4): 436-441. July-Oct. 1959. WR 101: 43

"A theory is put forward that, for each species, population-densities are limited at a safe level, which will protect the food-supply from long-term depletion and assure its renewal for the future. Instead of competing directly for food, animals compete for conventional substitutes, e.g. territory or social position, which are capable of imposing a ceiling density at the optimum level, and can prevent it from rising to the starvation level which would endanger future resources."--From auth. summ.

BIRDS--ECONOMICS, CONTROL, MORTALITY

Alexander, Harold E. (Ark. Game & Fish Comm., Little Rock.) THE STATE GAME AND FISH DEPARTMENT AND BIRD DEPREDATIONS. Trans. 25th N. A. Wildl. Conf. p. 111-113. 1960. WR 101: 43

The principal form of bird depredation in Ark. is that of blackbirds on rice. Actions taken by the farmer to protect his crops are justified until control measures produce repercussions damaging to other interests. When use of poisons, or other measures, affect wildlife, water, human health, or ecological relationships, other interests are justifiably concerned. The wildlife agency should carry on research, and should cooperate with all interests to work out mutually desirable control measures.--From auth. abst.

Buchheister, Carl W. (Natl. Audubon Soc., 1130 Fifth Ave., N. Y. 28, N. Y.) PROBLEM BIRDS. Trans. 25th N. A. Wildl. Conf. p. 134-137. 1960. WR 101: 43

It is recognized that starlings have increased but claims of increases in native blackbird populations are not supported by acceptable evidence. The author suggests crop depredations by native species may be due to farming practices that tend to bait the birds. The problem is intensified by specialization of large areas of agricultural lands which reduces biological diversity and tends to destroy environmental stability. Government crop subsidies are also important. Chief value of native bird populations is neither esthetic nor economic but rather lies in their biological and ecological roles. Some birds pose problems locally and temporarily, but the sensible approach is to control the damage without eliminating or drastically reducing the species. Research in agricultural practices that will avert depredations is recommended. The National Audubon Society would oppose changing the U. S. Fish & Wildlife Service bird-control policy to permit "accidental" kills of protected species in connection with control operations against such species as starlings and blackbirds.--From abst. by Charles Callison.

Csaba, József. ADALÉKOK A FÁK ÉS CSERJÉK TERMÉSÉT FOGYASZTÓ MADARAK TÁPLÁLKOZÁSÁHOZ. [CONTRIBUTION TO THE NUTRITION OF BIRDS CONSUMING THE CROPS OF TREES AND SHRUBS.] Aquila 65: 85-87. 1958. [From Biol. Abst. 35(24), 1960.] WR 101: 43

[In Hungarian] with English summary.

Delvingt, W. (Lab. Gen. Zool., Inst. Agron., Gembloux, Belgium.) SUR L'ORIGINE DES DORTOIRS URBAINS D'ÉTOURNEAUX SANSONNETS, STURNUS VULGARIS LINNÉ. [ON THE ORIGIN OF URBAN ROOSTING BY THE STARLING, STURNUS VULGARIS LINNAEUS.] Bul. Inst. Agron. Sta. Rec. Gembloux 27(4): 412-417. 1959. [From Biol. Abst. 35(20), 1960.] WR 101: 43

In French with English summary. The author discussed urban roosting of starling populations in major cities, London, England; Washington, U.S.A.; Brussels, Antwerp and Liége, Belgium; and Paris, France. He considered urban roosting to be a recently and independently acquired habit, which began near the turn of the century. The starling, both in England and the U.S.A., has reached a level of "technophily" involving roosting on buildings. In Belgium roosting in towns remains limited to park trees or ivy on buildings, building ledges are never used; this seems to apply to all other areas of western continental Europe.--MDS.

Finnis, R. G. ROAD CASUALTIES AMONG BIRDS. Bird Study 7(1): 21-32. Mar. 1960. WR 101: 44

Comparison is made between British, French, and American roads and their effect on bird mortalities. British roads are the most lethal because of their frequent corners and close cover. The highest mortalities are among the house sparrows, blackbirds, and song thrushes in that order.--Mary F. Myers.

Giltz, Maurice L. (Ohio State U., Columbus.) THE NATURE AND EXTENT OF BIRD DEPREDATIONS ON CROPS. Trans. 25th N. A. Wildl. Conf. p. 96-99. 1960. WR 101: 44

Depredations of crops by birds occur in general when migrating or wintering accumulations of birds coincide with a crop in a stage of maturity that is susceptible to birds using the crop for food. Ten agricultural crops are badly damaged by at least 20 species of birds in parts of at least 20 States. The value of these crops destroyed by birds amounts to several million dollars for corn, rice, and sorghum. Losses to individual farmers often amount to over a thousand dollars.--Auth. summ.

Gøtzsche, N. E. [CONTROL OF SEA GULLS IN SELF DEFENSE.] Landbonyt 14(3): 94-96. Mar. 1960. [From Bibliog. Agr. 24(10), 1960.] WR 101: 44

"In Danish. Chiefly on the transmission of livestock diseases by sea gulls."

Lindzey, James S. (Patuxent Wildl. Res. Cent., Laurel, Md.) RESEARCH ON CONTROL OF BLACKBIRD DEPREDATIONS. Trans. 25th N. A. Wildl. Conf. p. 116-121. 1960. WR 101: 44

Philosophy and problems in bird depredations research are reviewed briefly with particular attention to the conservation responsibilities and research being performed by the Bureau of Sport Fisheries and Wildlife. Chief need is for safe, effective and economical methods for controlling bird damage so that a strong public-supported program of bird protection can be maintained. Research is directed to provide protection from bird damage or nuisance without affecting bird numbers and also through control of bird numbers. The greatest attention is being given means of controlling damage without affecting bird numbers to preserve the beneficial aspects of species which may present problems under certain circumstances. Repellents, scare devices, cultural treatments, plant varietal resistance, playback of bird calls, habitat manipulations, mild shocking devices, and other techniques are being explored. Studies of control of numbers of birds causing damage consider direct bird control by chemicals and removal of birds by mechanical means and indirect population reduction through use of materials affecting reproduction and use of biological or ecological mechanisms. Research on basic biology and ecology of depredating bird species is being intensified to provide a more adequate basis for management of problem species through a better understanding of environmental relationships, bird movements and migration and inherent physiological characteristics and weaknesses. Conflicts between man and birdlife continue to develop as demands are made on the environment by specialized activities of man but research gains indicate that major conflicts can be resolved and that reasonable and beneficial populations of so-called "depredating species" can be maintained.--Author.

Lostetter, Clinton H. (US F&WS, Portland 8, Oreg.) MANAGEMENT TO AVOID WATERFOWL DEPREDATIONS. Trans. 25th N. A. Wildl. Conf. p. 102-109. 1960. WR 101: 44

With extensive land-use change during the past 30 years, many natural waterfowl lands have been converted into profitable croplands during the process of agricultural expansion. Waterfowl, for survival, have been forced to go elsewhere; onto the greatly reduced habitat areas or onto the newly developed croplands. This shift in waterfowl use in recent years has made us more aware of the waterfowl crop-damage problem because this competition for land and water has been increasing. The problem of waterfowl crop-damage control management to avoid crop losses can generally be dealt with by four main management methods: (1) To develop National and State waterfowl management areas with food and water to supplement the loss of natural habitat, (2) to devise and use certain mechanical devices and techniques to scare waterfowl from potential or present damage areas, (3) to use regulatory measures when necessary to maintain a balance of bird population with available habitat, (4) to educate the farmer so that he can help himself with his bird damage problem. --From auth. abst.

McCartin, Leontia. (Univ. Coll. of Wales, Aberystwyth.) MORTALITY OF KITTIWAKES DURING THE BREEDING SEASON. Brit. Birds 51(7): 267-268. July 1958. WR 101: 45

The cause of mass mortalities among kittiwakes is not known. It is suggested that adult mortalities may be due to an epidemic sweeping through the colony. Starvation seems to have been the cause of death in the several cases of juvenile mortality--perhaps due to a larger hatch than usual or failure of a food supply.--Mary F. Myers.

Mitchell, Robert T. (Patuxent Wildl. Res. Cent., Laurel, Md.) MANAGEMENT TO AVOID BIRD DEPREDATIONS. Trans. 25th N. A. Wildl. Conf. p. 99-101. 1960. WR 101: 45

Agricultural bird-damage problems vary greatly according to the bird species involved, the type of crop, the season, geographical location, and other factors. Possible approaches to damage control include 1) excluding birds from the area, 2) making the crop unavailable to the birds present, 3) making the crop unattractive to the birds present, and 4) reducing the number of birds. Birds can be excluded from small areas by paper netting. They can be frightened away by rifle shooting, carbide exploders, or rope fire-crackers. They can be discouraged by cultural practices, such as planting seed deeply, adjusting the planting and harvest times, or by using varieties of plants that are less susceptible to damage. They sometimes can be repelled by chemicals. Limited control can sometimes be obtained by shooting, poisoning with treated baits, or trapping. Some day, they may be controlled by bombing, gassing or spraying the roosts, but these methods involve many problems and are still in the experimental stage.--Author.

Parker, Lansing A. (Bureau of Sport Fisheries & Wildl., Wash., D. C.) FEDERAL RESPONSIBILITIES IN BIRD DEPREDATIONS CONTROL. Trans. 25th N. A. Wildl. Conf. p. 138-143. 1960. WR 101: 45

The Bureau of Sport Fisheries and Wildlife has definite statuatory responsibilities for certain birds. It conducts research on methods of alleviating bird damage; publishes findings on recommended methods; demonstrates control techniques; and participates in the dispersal and reduction of bird populations. This participation includes the use of various nonreductional methods for migratory game birds; the issuance of killing permits and general orders to reduce the damage caused by local populations of migratory birds; the issuance of permits to cover protected species accidentally killed as a result of a control program and the actual reduction of nongame birds doing damage under certain conditions.--From auth. summ.

Poznanin, L. P., editor. WAYS AND MEANS OF USING BIRDS IN COMBATING NOXIOUS INSECTS / PROCEEDINGS OF CONFERENCES HELD ON 25-28 NOVEMBER 1953 AND 21-23 DECEMBER 1954. [1956.] Ministry Agr., USSR (Moscow). [ii] + 138 p. + 23 figs. 1960. Published for the Natl. Science Foundation and the Dept. of Interior by the Israel Program for Scientific Translations. [Available from the Office of Technical Services, U. S. Dept. Commerce, Washington 25, D. C. Price $1.50.] WR 101: 45

Translated from Russian. This collection of articles presents some of the results of research which was performed on the insectivorous birds which act as destroyers of forest and agricultural pests. The papers (totalling 28) can be grouped as follows: a) the role of small birds as destroyers of harmful insects; b) the attraction of these birds to forest plantations; c) the transmigration of small insectivorous birds. In general, the techniques of attracting birds were more effective than transmigration.

Roper, G. D. STARLINGS IN PLANTATIONS. Quart. J. For. 54(3): 270-271. July 1960. [From Bibliog. Agr. 24(10), 1960.] WR 101: 45

"Control."

Southern, H. N. (Bur. Anim. Pop., Oxford, England.) MORTALITY AND POPULATION CONTROL. Ibis 101(3-4): 429-436. July-Oct. 1959. WR 101: 46

There are 2 theories about the relative importance of birth- and death-rates in controlling bird populations. "One holds that the death-rate is the important variable, the other that the birth-rate, by declining, if necessary, to zero, can regulate a population at a level below the danger of starvation." The author concludes that "density-dependant mortality is a widespread regulator of bird population and may be important even in populations which appear to control their own level by e.g. territorial spacing."--From auth. summ.

Szijj, Jozsef. A SEREGÉLY TÁPLÁLKOZÁSBIOLÓGIÁJA ÉS MEZÖGAZDASÁGI JELENTÖSÉGE. [THE FOOD-BIOLOGY OF THE STARLING AND ITS AGRICULTURAL IMPORTANCE.] Aquila 63/64: 71-100, map. 1956-1957. [From Biol. Abst. 35(24), 1960.] WR 101: 46

[In Hungarian] with English summary.

Thearle, Ronald J. P. (Min. Agr., England.) THE USE OF NARCOTICS IN CATCHING HARMFUL BIRDS. Ann. Applied Biol. 48(2): 414-415. 1960. [From Biol. Abst. 35(23), 1960.] WR 101: 46

Of the 7 substances tested in the laboratory α-chloralose showed most promise. Field trials using chloralose on a grain bait had only limited success against Corvidae and wood-pigeons (Columba palumbus) in rural areas, but trials against feral pigeons (Columba livia) and house-sparrows (Passer domesticus) in urban districts were successful.--Author.

Vertse, Albert. GYÜMÖLCSÖS MESTERSÉGES MADÁRTELEPÍTÉSÉT BEFOLYÁSOLÓ KÖRNYEZETI TÉNYEZÖK GYAKORLATI MEGHATÁROZÁSA. [PRACTICAL DETERMINATION OF ENVIRONMENTAL FACTORS INFLUENCING THE ARTIFICIAL SETTLING OF BIRDS IN ORCHARDS.] Aquila 65: 51-60, illus. 1958. [From Biol. Abst. 36(1), 1961.] WR 101: 46

[In Hungarian] with German summary.

Williams, Francis J. (Ark. Agr. Exp. Sta., Stuttgart.) THE AGRICULTURAL EXPERIMENT STATION IN RELATION TO BIRD DEPREDATIONS. Trans. 25th N. A. Wildl. Conf. p. 113-116. 1960. WR 101: 46

Damage by blackbirds to crops in Ark. has recently been estimated to be 5.5 million dollars annually. There is no known practical or economical way to prevent these losses. Experiment stations have a definite responsibility to the farmer--to assist him produce and market his products more efficiently. Any research on the problem should be conducted on a regional basis.--From summ.

BIRDS--PARASITES AND DISEASES

Ash, J. S. A STUDY OF THE MALLOPHAGA OF BIRDS WITH PARTICULAR REFERENCE TO THEIR ECOLOGY. Ibis 102(1): 93-110. Jan. 1960. WR 101: 46

The ecology and biology of the ectoparasites of more than 3000 live birds were studied with emphasis on Mallophaga. The food and temperature requirements of the lice, the effect of the lice on the host, the relationship between host and parasite, and the habitat of Mallophaga on their hosts are discussed. The appendices contain information dealing with collection and examination techniques and sampling methods.--From auth. summ.

Johnson, Harald Norlin. (Calif. State Dept. Public Health, Berkeley.) PUBLIC HEALTH IN RELATION TO BIRDS: ARTHROPOD-BORNE VIRUSES. Trans. 25th N. A. Wildl. Conf. p. 121-133, 1 fig. 1960. WR 101: 46

Western equine, Eastern equine, St. Louis, Japanese B, West Nile, and Sindbis viruses have been isolated from wild birds. All of these viruses may infect man, and the first four have been responsible for epidemics of encephalitis in man. These viruses exist in nature as parasites of wildlife. It is postulated that these viruses have a permanent cycle in small mammals where the virus ordinarily produces an asymptomatic infection, and an intermittent cycle involving bird-mosquito-bird transmission which serves as the source of the virus for infection of man. Experimental studies have shown that several of the wildlife viruses may be found in organs such as the kidney, breast, pancreas and salivary glands of experimentally infected mice. This makes it possible for the virus to pass from animal to animal without an intermediate arthropod

host. It is indicated that blackbirds of the family Icteridae move Western equine and St. Louis viruses from natural foci to the sites of epidemic activity. The English sparrow is an important host in the epidemic cycle of Western equine virus. It is suggested that control work be directed at the mosquito vector.--From auth. abst.

Kasimov, G. B. [THE HELMINTH FAUNA OF BIRDS OF THE FAMILY NUMIDIDAE, ORDER GALLIFORMES.] Doklad. Akad. Nauk Azerbaidz. SSR 16(3): 303-305. 1960. [From Helminth. Abst. 29(4), 1960.] WR 101: 47

In Russian. "Kasimov lists 29 cestodes, 21 nematodes, 5 trematodes and 5 acanthocephalans from seven species of Numididae."

Poulding, R. H. FOWL POX IN A CARRION CROW. Brit. Birds 53(4): 174-175, 1 pl. Apr. 1960. WR 101: 47

A report of fowl pox virus, a disease rarely recorded in wild birds, in a carrion crow.--Mary P. Myers.

Rico, C. M., and L. A. Vita. EXPERIENCIAS HIDÁTICAS EN AVES CARNÍVORAS Y OMNÍVORAS. [EXPERIMENTAL HYDATID INFESTATION IN BIRDS OF PREY AND OMNIVOROUS BIRDS.] 16th Internat. Vet. Cong. (Madrid), 21-27 May 1959. Vol. 2. p. 717-721. 1959. [From Helminth. Abst. 29(4), 1960.] WR 101: 47

"The absence of dogs and the simultaneous frequency of hydatid disease in some localities made the authors suspect birds of prey and omnivorous birds as definitive hosts of Echinococcus granulosus. About 200 of these birds in the zoological garden of Cordoba, belonging to 22 species, were fed with viscera containing hydatid cysts and given hydatid fluid to drink. Extensive coprological and post-mortem examinations failed to reveal any infection resulting from this experiment. It is concluded, therefore, that birds do not provide favourable conditions for the survival of E. granulosus because of the high body temperature and faecal acidity."--N. Jones.

GAME BIRDS--GENERAL

Kurashvili, B. E. [THE HELMINTHS OF GAME BIRDS IN GEORGIA, THEIR SYSTEMATICS AND ECOLOGY.] Izdatelstvo Akad. Nauk SSSR. 434 p. 1957. [From Helminth. Abst. 26(5/6), [1960].] WR 101: 47

In Russian. "The 222 helminth species found...in 2,700 game birds (belonging to 120 species) in various parts of the Georgian S.S.R. are monographed. The helminths are listed under hosts.... In the ecological section, infections of birds in relation to their distribution in the different geographical zones of Georgia and the dependence of the helminth fauna on the mode of life, food and age of the birds and on seasonal dynamics are discussed."

QUAIL

Agee, C. Phillip. FALL MOVEMENTS AND COVEY FORMATION IN CENTRAL MISSOURI BOBWHITES. M.A. thesis, U. Mo. 81 p. 1955.--Courtesy/ Thomas S. Baskett. WR 101: 47

Crispens, Charles G., Jr., Irven O. Buss, and Charles F. Yocum. (Roscoe B. Jackson Memorial Lab., Bar Harbor, Maine.) FOOD HABITS OF THE CALIFORNIA QUAIL IN EASTERN WASHINGTON. Condor 62(6): 473-477. Nov.-Dec. 1960. WR 101: 47

In all, 169 different food items were recorded of which 159 were plant species. Seeds represented the major portion of the diet with wheat ranking first in percentage of total volume throughout the year. Grit and chaff made up 50% of the total volume of material found in gizzards but never exceeded 8% in crops.

Gvozdev, E. V. [PARASITIC WORMS OF COTURNIX COTURNIX FROM THE VICINITY OF ALMA-ATA.] Trudy Inst. Zool., Akad. Nauk Kazakhskoi SSR 5: 77-83. 1956. [From Helminth. Abst. 29(2), 1960.] WR 101: 48

In Russian. In a five-year study 115 coturnix were examined. A total of 17 spp. of helminths was found, eight of which were new for this host in the USSR, bringing the list of species known for Russia up to 30.

Hungerford, Charles R. (U. Ariz., Tucson.) WATER REQUIREMENTS OF GAMBEL'S QUAIL. Trans. 25th N. A. Wildl. Conf. p. 231-240. 1960. WR 101: 48

Native s. Ariz. Gambel's quail show a dependence on moist succulent plant foods. Quail without access to any moisture source other than from such foods have good survival and reproduction. The calculated moisture requirement of the Gambel's quail appears to be fulfilled by the measured moisture content of natural food items. Behavioral adaptations and physiological adaptations to conserve moisture were discussed. Gambel's quail can and do subsist well without free water in s. Ariz. and rainwater catchments designed for this species alone are considered non-essential.--From auth. abst.

Kirkpatrick, Ralph D. (Okla. State U., Stillwater.) MOVEMENTS AND LONGEVITY OF JAPANESE QUAIL RELEASED IN INDIANA. Ind. Audubon Quart. 38(4): 58-59. Nov. 1960. WR 101: 48

Banded Japanese quail released in Ind. during 1956 through 1958 totalled 28,310. The liberated birds remained on the release sites for a few months at most. Only 2 of 27 recoveries had lived more than 6 months. The greatest distance traveled (minimum) was 660 miles. The greatest minimum number of miles traveled per day was 13.75. At the end of the 3-year study period there was no evidence that the quail had become established in Indiana.

Lyon, David L. GROWTH AND PLUMAGES OF COTURNIX QUAIL. M.A. thesis, U. Mo. 123 p. 1959.--Courtesy/ Thomas S. Baskett. WR 101: 48

Marsden, Halsey. ANNUAL MORTALITY IN A BANDED BOBWHITE POPULATION. M.A. thesis, U. Mo. 47 p. 1957. WR 101: 48

[See WR 94: 64 for a review of a paper bearing the same title by Marsden and Baskett.]--Courtesy/ Thomas S. Baskett.

Padgett, Carol Smith, and William D. Ivey. (Huntingdon Coll., Montgomery, Ala.) THE NORMAL EMBRYOLOGY OF THE COTURNIX QUAIL. Anat. Rec. 137(1): 1-11, illus. 1960. [From Biol. Abst. 35(21), 1960.] WR 101: 48

Reid, Vincent H., and Phil D. Goodrum. (Colo. State U., Fort Collins.) BOBWHITE QUAIL: A PRODUCT OF LONGLEAF PINE FORESTS. Trans. 25th N. A. Wildl. Conf. p. 241-252, 4 figs. 1960. WR 101: 48

In an ecological study of bobwhite quail on longleaf pine forest land in sw. La., the population trend of the birds was followed for 7 years. Young : old ratios were determined for 10 years and hatching dates were calculated for 4 years by examining wing samples. Annual population trends were much the same on hunted and unhunted range. Best winter populations followed summers of a high reproductive success. One of the best reproductive seasons and highest quail years had a large late quail hatch. There was a significant relationship between annual bobwhite production and maximum summer temperatures and between production and the amount of summer rainfall. Best annual production and populations followed cool moist summers while poorer reproductive success and populations followed hot dry summers. Summer temperature and precipitation records may be useful for predicting annual reproductive success and winter populations in this part of the bobwhite range.--V. H. Reid.

Ripley, Thomas H. (SE For. Exp. Sta., Asheville, N. C.) WEIGHTS OF MASSACHUSETTS QUAIL AND COMPARISONS WITH OTHER GEOGRAPHIC SAMPLES FOR TAXONOMIC SIGNIFICANCE. Auk 77(4): 445-447, 1 fig. Oct. 1960. WR 101: 48

QUAIL--Continued

Wetherbee, David Kenneth. (Mass. Coop. Wildl. Res. Unit, Amherst, Mass.) INVESTIGATIONS IN THE LIFE HISTORY OF THE COMMON COTURNIX. Am. Midl. Nat. 65 (1): 168-186, 1 fig. Jan. 1961. WR 101: 49

Abstract: A compilation of the known life history data of Coturnix coturnix is presented. Topics include description of juvenal and adult plumage, weights, and linear measurements. Voice, habitat, and distribution are considered as well as aspects of reproduction. Decimating factors, rate of survival, food, and behavior are also considered.

PHEASANTS

Bevan, E. G. (RFD 4, Millville, N. J.) RINGNECKS AND THE SALT MARSH. N. J. Outdoors 11(5): 2-5, illus. Nov. 1960. WR 101: 49

"It has become apparent that this type of marsh can be used successfully for liberated pheasants, supplying huge areas for the pheasant hunter of the future at low cost of acquisition and development."

Linder, Raymond L., David L. Lyon, and C. Phillip Agee. (Box 211, Fairmont, Nebr.) AN ANALYSIS OF PHEASANT NESTING IN SOUTH-CENTRAL NEBRASKA. Trans. 25th N. A. Wildl. Conf. p. 214-230, 3 figs. 1960. WR 101: 49

Data from the first half of a planned 10-year study of pheasant ecology were analyzed to evaluate the various cover types in the production of chicks and the role of this production in relation to population changes. From nests on sample plots, it was calculated that nearly 90% of the nests on the study area were established in wheat, roadsides and alfalfa and about 90% of the total production of chicks came from nests in wheat and roadsides. In a hypothetical "average year" on the 7-section study area, there were 144 hens in the spring population which established an average of 2.9 nests each. Sixty-three (44%) of these hens were successful, producing 496 young, or 7.8 chicks each. Based upon the spring population of adults, there were 3.4 young per hen. A production index of 3.0 young per hen seemed to represent a threshold; when this figure was exceeded, the following spring's population was higher and when the figure was not attained, the following spring's population was lower. Quality of the nesting environment appeared to determine the number of nests which would be successful; this regulated production which in turn determined the level of the following year's breeding population. In each of the 5 years, a surplus of hens was apparently present in the breeding population.--R. L. Linder.

MacMullan, Ralph Austin. A POPULATION SURVEY OF THE RING-NECKED PHEASANT IN MICHIGAN. Ph.D. thesis, Mich. State U. 186 p. 1960. [From Dissertation Abst. 21(5), 1960.] WR 101: 49

The objectives of the study were to reconstruct a history of past populations, to acquire information on current population levels, and to devise better sampling methods. Surveys were made during the 4 seasons. The most useful were made by rural mail carriers and conservation officers.

Trautman, Carl G. (S. Dak. State Coll., Brookings.) EVALUATION OF PHEASANT NESTING HABITAT IN EASTERN SOUTH DAKOTA. Trans. 25th N. A. Wildl. Conf. p. 202-213. 1960. WR 101: 49

Intensive nesting habitat studies on a 36-square mile area in e. South Dakota covered 6.5% of the nesting habitat in 1958, and 3.6% in 1959. Nests found during the 1958 survey of 1,051 acres totalled 791. For 1959, a survey of 512 acres yielded 409 nests. Oats, pasture, flax, and alfalfa comprised 75% of the nesting cover in 1958, and 70% in 1959. Overall nest density was 0.84 nest per acre in 1958, and 0.91 in 1959. Largest densities were observed in fencerows and roadsides among cover types occurring in strips; and in alfalfa and sloughs among those occurring in field-size blocks. Nearly 60% of the total production of young pheasants in both years came from oats, pastures, sloughs, and roadsides. Average hatching success was 20% in 1958, and 24.8% in 1959. The mean clutch size for hatched nests was 9.2 and 8.6 eggs, with 86 and 87 per cent of the eggs hatched in each year. Extent of early use of any given cover type for nesting was dependent upon the amount of residual cover available. Use later in the nesting season appeared dependent on the rapidity of growth and density of the current year's vegetation.--From auth. abst.

GROUSE, PARTRIDGE, ETC.

Andrew, D. G. PHOTOGRAPHIC STUDIES OF SOME LESS FAMILIAR BIRDS / LXXXVIII. CAPERCAILLIE. Brit. Birds 51(5): 189-192, 4 pls. May 1958. WR 101: 50

An account of the history, distribution, races, and breeding behavior of the capercaillie. Breeding displays of the ♂ are illustrated by photographs. --Mary F. Myers.

Bezubik, B. (Agr. Coll. Lublin, Poland.) HELMINTH PARASITES OF BLACK-GROUSE (LYRURUS TETRIX L.) AND CAPERCAILLIE (TETRAO UROGALLUS L.). Acta Parasit. Polonica 8(1/7): 37-46. 1960. [From Biol. Abst. 35(21), 1960.] WR 101: 50

In English with Polish summary. The author examined 87 grouse and 18 heath hens (capercaillie). Ninety-three per cent of the former and 72% of the latter were infected. Raillietina urogalli was recorded for the 1st time in Poland; the remaining 4 parasites were also common to domestic fowl. For grouse, percentages of infection were: R. urogalli - 39; R. cesticillus - 19.5; Ascaridia compar - 88; Heterakis gallinae - 6; and Capillaria caudinflata - 3%; for heath hens, ibidem: 10, 0, 68, 6 and 0%.--From abst. by MDS.

Dalke, Paul D., Duane B. Pyrah, Don C. Stanton, John E. Crawford, and Edward Schlatterer. (U. Idaho, Moscow.) SEASONAL MOVEMENTS AND BREEDING BEHAVIOR OF SAGE GROUSE IN IDAHO. Trans. 25th N. A. Wildl. Conf. p. 396-407, 2 figs. 1960. WR 101: 50

The study centered in an area about 50 by 50 miles in e. Idaho. Intensive work on one strutting ground complex of nineteen grounds showed that most of the population gather on these strutting grounds for courtship and mating. Strutting ground size and characteristics are described. Peak of mating activity is between Apr. 7 and 21 after which the numbers of ♀♀ on the strutting grounds rapidly decrease. Subadult ♂♂ use the strutting grounds in increasing numbers as the ♂♂ and ♀♀ leave the grounds. Territorial defense by master cocks rarely exceeds an area more than 40 feet in diameter, while primary mating spots are only about 5 feet in diameter. Interground movements varied from 0.3 to 3.3 miles. Summer range is 25-30 miles north of the breeding and nesting area. Individual broods flock together beginning about August 1. Migration to fall and winter ranges west and southwest began in earnest when temperatures had dropped to 15-20°F. Wintering concentrations were of loose groups up to 100 birds each. Small flocks often join others to form large roosting groups. Sagebrush fills all the needs of sage grouse on the winter range. The high count of ♂♂ on strutting grounds is an acceptable management tool for population trends as long as extensive management methods prevail. Hatching sage grouse are vulnerable to low temperatures, high winds coupled with snow or rain.--From abst. by Paul D. Dalke.

Gvozdev, E. V. [PARASITIC WORMS OF ALECTORIS GRAECA MEISNER, 1804 IN SOUTH-EASTERN KAZAKHSTAN.] Trudy Inst. Zool. Akad. Nauk Kazakhskoi SSR 5: 61-76. 1956. [From Helminth. Abst. 29(2), 1960.] WR 101: 50

In Russian. In a survey of the helminth fauna of Alectoris graeca 21 forms were found. "This brings the number of helminths known for A. graeca from the USSR up to 34 spp.; 13 of the spp. are reported for the first time for this host."

Hamerstrom, Frederick, and Frances Hamerstrom. (Wis. Cons. Dept., Plainfield.) COMPARABILITY OF SOME SOCIAL DISPLAYS OF GROUSE. Proc. 12th Internat. Ornith. Cong. (Helsinki) 1958. p. 274-293, 1 fig. (1960.) WR 101: 50

A comparison of the display behavior of the black grouse and the prairie chicken indicates that these grouse are more closely related than their present geographic distribution or external morphology would suggest. One table serves to "clarify terminology enough so that European and American ornithologists know what one another are talking about, and...show to what degree the displays of some Old and New World tetraonids are comparable."

TURKEY

Watson, C. W., and others. PROCEEDINGS OF THE FIRST NATIONAL WILD TURKEY MANAGEMENT SYMPOSIUM. SE Sect. Wildl. Soc. vii + 200 p., illus. 1960. Available at $3.00 from Dr. Henry Mosby, Va. Coop. Wildl. Res. Unit, Va. Polytechnic Inst., Blacksburg, Va. WR 101: 51

An important contribution to the literature of the wild turkey. In the decade since the last extensive wild turkey reports by Mosby and Walker [see WR 58: 44], the wild turkeys have increased from the 1949 level of 129,000 to the current population level of 460,000. The two dozen papers (plus an introduction by C. W. Watson) which were presented at the First National Wild Turkey Symposium at Memphis, Tenn. in 1959 summarize the current status and distribution of wild turkeys in the U. S., and recent advances in restoration, range management, research and harvest methods for this game bird. These papers are: General status of the wild turkey and its management in the United States, 1958, Henry S. Mosby; The present status of the wild turkey in New Mexico, Levon Lee; Summary of 1958 Michigan turkey populations, Vic Jansen; Status of turkey in Montana, Robert L. Eng; Wisconsin's wild turkey project, George F. Hartman; Turkey hen-poult ratios as an index to reproductive trends, Richard DeArment; Aspects of harvest and hunting pressure in Pennsylvania's wild turkey range, Harvey A. Roberts; Turkey restoration efforts in the Ozark Region of Arkansas, John R. Preston; The aerial drop method of releasing wild trapped turkeys for restocking purposes, James A. Powell and Louis F. Gainey; Results of stocking wild-trapped and game farm turkeys in Kentucky, Frederick C. Hardy; History of turkey restoration in Mississippi and its effect on present management, Bruce C. Johnson; Wild turkey restoration in Missouri -- Attempts and methods, John B. Lewis; Comparative results of stocking game farm and wild trapped turkeys in Ohio, Arthur C. Sickels; Recent results of wild turkey restocking efforts in West Virginia, David D. Gilpin; Brief summary of turkey range management, Daniel W. Lay; Timber sales and turkey management on eastern national forests, Samuel P. Shaw; Turkey management as a factor in the multiple use management of the Cumberland National Forest, William W. Wentz and Frederick C. Hardy; Morphological indicators of heritable wildness in turkeys (Meleagris gallopavo) and their relation to survival, Eugene Knoder; A preliminary progress report on nest predation as a limiting factor in wild turkey populations, James R. Davis; Preliminary report on wild turkey banding studies as applicable to management in West Virginia, R. Wayne Bailey; An aging technique for juvenal wild turkeys based on the rate of primary feather moult and growth, Eugene Knoder; Wild turkey research needs, W. C. Glazener; Research needs for Merriam turkey in Arizona, Robert A. Jantzen; Summarization of the First National Wild Turkey Symposium, Leonard E. Foote. The discussion which complements the papers reflects the wide distribution of the participants of this meeting. Twenty-six states were represented.

DOVES AND PIGEONS

Chambers, Glenn D. A STUDY OF WINTERING FLOCKS OF MOURNING DOVES. M.A. thesis, U. Mo. 86 p. 1961.--Courtesy/ Thomas S. Baskett. WR 101: 51

Frankel, Arthur I. AN ANALYSIS OF THE SONG AND OTHER BEHAVIORAL ASPECTS OF PENNED MOURNING DOVES (ZENAIDURA MACROURA). M.A. thesis, U. Mo. 145 p. 1961. --Courtesy/ Thomas S. Baskett. WR 101: 51

Murton, R. K. (Min. Agr., Fisheries, and Food, Tangley Place, Worplesdon, Surrey, England.) POPULATION DYNAMICS OF THE WOOD-PIGEON (COLUMBA P. PALUMBUS) AND METHODS OF CONTROL. Ann. Applied Biol. 48(2): 419-422. 1960. [From Biol. Abst. 35(23), 1960.] WR 101: 51

The use of direct counts, counting the occupied nest density during the breeding season, and capture-recapture methods for estimating wood-pigeon population size are discussed. Some of the factors involved in artificially reducing population size by control measures are briefly considered. Nest destruction was known to have a 63% efficiency but when carried out on a large scale by farmers etc. the efficiency dropped to approximately 30%. These efficiency figures are related to the effect of this control method on population size.--Author.

Tomlinson, Roy E. MIGRATIONAL HOMING AND LOCAL MOVEMENTS OF MOURNING DOVES, M.A. thesis, U. Mo. 86 p. 1959. WR 101: 52
[See below for paper based on this study.]--Courtesy/ Thomas S. Baskett.

Tomlinson, Roy E., Howard M. Wight, and Thomas S. Baskett. (3803 Headingly NE, Albuquerque, N. Mex.) MIGRATIONAL HOMING, LOCAL MOVEMENT, AND MORTALITY OF MOURNING DOVES IN MISSOURI. Trans. 25th N. A. Wildl. Conf. p. 253-267, 4 figs. 1960. WR 101: 52

Paper reports migrational homing and local movements of mourning doves at a n. cent. Mo. banding area. Included also is a comparison of mortality rates computed from returns to the study area with statewide recoveries. Retrap records and observations of dyed juveniles showed that young doves left the study area soon after fledging. The mean annual mortality rate after the first year calculated from returns was 51.5%. This figure agrees with the 52% estimated from Mo. recoveries. Ninety percent of all retrapped birds were captured within one mile of the original capture point. Migrational homing was remarkably accurate. Of 211 returns, 87% were recaptured within a mile of their original capture point, and over one-fourth returned to the exact spot of original capture. By correcting for mortality and trapping inefficiency, it was estimated that all surviving adult ♂♂ and 93% of surviving adult ♀♀ returned to nest in the area of previous nesting.--From abst. by R. E. Tomlinson.

WATERFOWL

Atkinson-Willes, G. L., and G. V. T. Matthews. THE PAST STATUS OF THE BRENT GOOSE. Brit. Birds 58(8): 352-357. Aug. 1960. WR 101: 52

This paper concerns Salmonsen's use of extracts from British literature to obtain historical estimates of numbers of brent geese (WR 100: 71). The conclusion that there has been a drastic decline in goose numbers has been sharply criticised. Salmonsen's conclusions were reached by only using figures from counties from which average estimates were available for all three periods in question. The author states that it is wrong to assume that a decline in population in one area is necessarily associated with similar declines over the whole range.--Mary F. Myers.

Banko, Winston E. (Bur. Sport Fisheries & Wildl., Washington 25, D. C.) THE TRUMPETER SWAN / ITS HISTORY, HABITS, AND POPULATION IN THE UNITED STATES. N. A. Fauna no. 63. x + 214 p., 54 figs. Apr. 1960. Available from Supt. Documents at $1.00. WR 101: 52

After an introductory account on the legends, description, and systematics of the trumpeter swan, there is an interesting historical survey of its status from 1632 to 1957. The trumpeter swan which was threatened with extinction about a quarter of a century ago has made a phenomenal comeback. "Its increase is correlated with the establishment of the Red Rock Lakes Refuge and the increased protection and attention which then became possible." The tally of swans in 1931 was 35; in 1958 the tally was 703. The bulk of this well-written monograph deals with the habitat (breeding and winter), description, behavior, breeding, nesting and development of young, food habits, limiting factors, longevity, population dynamics, and management of this swan.

Boase, Henry. NOTES ON THE DISPLAY, NESTING AND MOULT OF THE MUTE SWAN. Brit. Birds 52(4): 114-123, 1 fig. Apr. 1959. WR 101: 52

The author discusses display, nesting, moult, calls, bathing, and feeding of the mute swan.--Mary F. Myers.

Boyd, Hugh. (Wildfowl Trust, Slimbridge, Gloucester, England.) THE COMPOSITION OF GOOSE POPULATIONS. Ibis 101(3-4): 441-445. July-Oct. 1959. WR 101: 52

"It has slowly been realized that direct observations of goose flocks can provide much of the information needed to determine the age-structure of flocks, annual breeding success and mortality. Studies of goose populations employing all the available techniques are now being actively pursued in Britain as well as North America."--From auth. summ.

Boyd, Hugh, and Peter Scott, editors. THE ELEVENTH ANNUAL REPORT OF THE WILDFOWL TRUST, 1958-1959. Printed for Wildfowl Trust (Slimbridge, Gloucestershire, England) by F. Bailey & Son, Ltd., Dursley, Gloucestershire, England. 168 p., illus + 32 pls. 1960. 10 shillings. WR 101: 53

Routine reports include the results of banding, aerial survey, breeding, and food investigations of waterfowl on the Trust's grounds. Research articles include: Comparative behaviour of the Anatidae and its evolutionary implications; Experiments on the causation of the threat postures of Canada geese; Injury-feigning in the Anatidae; The pink-headed duck Rhodonessa caryophyllacea (Latham); BBC/IUCN Darwin Centenary expedition to the British Virgin Islands, Trinidad, Panama, Ecuador, and the Galapagos Islands, January-March 1959; Goose-netting in the Netherlands; The brent goose (Branta bernicula L.) in the Soviet Union; Brent goose population studies, 1958-59; Aerial survey of wildfowl in the highlands of northern Scotland in the spring of 1959; The shelduck population in the Bridgewater Bay moulting area; Lead poisoning in wildfowl (reprinted from Bul. Brit. Ornith. Club 80(3): 35-40 and (4): 53-59, 1960--see Olney, WR 100: 71); A technique for removing wildfowl viscera for research; A breeding population of the mallard; Duck catching in Iceland; and short notes.

Cooch, F. G., G. M. Stirrett, and G. F. Boyer. (Can. Wildl. Serv., 900-269 Main St., Winnipeg, Manitoba.) AUTUMN WEIGHTS OF BLUE GEESE (CHEN CAERULESCENS). Auk 77(4): 460-465, 1 fig. Oct. 1960. WR 101: 53

Summary: The weight of Blue Geese in autumn is dependent on the phenology of the breeding season. A short delay in the start of nesting causes significant decreases in the autumn weight, especially of immature birds. Subadults and failed-breeding adults show little annual variation, whereas successful breeding adults, particularly females, follow the same pattern as the juvenile cohorts.

Diem, Kenneth L. A STUDY OF THE FACTORS INFLUENCING WATERFOWL CENSUSES IN THE PARKLANDS, ALBERTA, CANADA. Ph.D. thesis, Utah State U. 89 p. 1958. [From Dissertation Abst. 21(7), 1961.] WR 101: 53

For review of article of similar title based on this thesis, see WR 99: 48.

Duebbert, Harold F. ISLAND NESTING OF THE GADWALL (ANAS STREPERA) IN NORTH DAKOTA. M.A. thesis, U. Mo. 80 p. 1958.--Courtesy/ Thomas S. Baskett. WR 101: 53

Evans, James. (229 N. Whitney St., St. Augustine, Fla.) DRAKE OR HEN? SEX AND AGE DETERMINATION IS AN IMPORTANT PART OF WATERFOWL STUDY. Fla. Wildl. 14 (7): 28-30, 34, 3 figs. Jan. 1961. WR 101: 53

A compendium of waterfowl sex and aging techniques written for sportsmen.

Ferguson-Lees, I. J. STUDIES OF LESS FAMILIAR BIRDS / 103. BLACK-NECKED GREBE. Brit. Birds 53(2): 77-81, 3 pls. Feb. 1960. WR 101: 53

Breeding has been reported only irregularly in Great Britain and Ireland in recent years. Habitat, breeding behavior, and food habits are described briefly.--Mary F. Myers.

Foley, Donald D. (Wildl. Res. Lab., Delmar, N. Y.) RECENT CHANGES IN WATERFOWL POPULATIONS IN NEW YORK. The Kingbird 10(3): 82-89, 3 figs. Oct. 1960. WR 101: 53

Baldpates, mallards and Canada geese have been seen to increase as migrants during recent years. Among breeding species the black duck has remained stable, the ring-necked duck has increased and both the common goldeneye and the gadwall have decreased.

Hamilton, William J. III, and Merrill C. Hammond. (Mus. Vert. Zool., Berkeley, Calif.) ORIENTED OVERLAND SPRING MIGRATION OF PINIONED CANADA GEESE. Wilson Bul. 72(4): 385-391, 1 fig. Dec. 1960. WR 101: 54

Summary: Adult pinioned Canada Geese escaped or were released at several National Wildlife Refuges in Minnesota, Nebraska, and the Dakotas, well south of the natural breeding range of this population. Subsequent sightings and recoveries indicate an accurate northward movement of these earth-bound birds during and after the period of normal goose migration. Overland movements up to 24.8 air miles were recorded. The rate of progress was more or less uniform throughout the season, ranging from .31 to .74 miles per day. The cues guiding the birds northward are not known, but some possibilities are discussed.

Harmon, Bobby G., Carl H. Thomas, and Leslie Glasgow. (La. State U., Baton Rouge.) WATERFOWL FOODS IN LOUISIANA RICEFIELDS. Trans. 25th N. A. Wildl. Conf. p. 153-161. 1960. WR 101: 54

Twenty ground samples (1' x 1' x 1/2") were collected from each of 9 rice farms in s. La. three times during the winter of 1958-9. In Nov. there was an average of 177 pounds of seed per acre; by Feb. this amount decreased 88%. In Nov. cultivated rice, millet, and red rice averaged 142, 15, and 9 pounds per acre respectively and by Feb. had decreased 92, 0, and 55 percent respectively. Probable reasons for deterioration were (1) sprouting, (2) decomposition, and (3) consumption by birds, rodents, insects, and cattle.--L. L. Glasgow.

Hunt, George S. (U. Mich., Ann Arbor.) LEAD POISONING AMONG DUCKS WINTERING ON LOWER DETROIT RIVER. Trans. 25th N. A. Wildl. Conf. p. 162-170, 1 fig. 1960. WR 101: 54

Considerable losses have occurred from time to time among ducks that began wintering consistently in the area about 1930. A study made during 1948 to 1955 indicated that lead poisoning is a minor cause of mortality. A total of 14,391 ducks of 4 spp. (black duck, canvasback, lesser scaup, and redhead) was examined for ingested lead shot. The incidence of ingested lead shot differed little between ducks which were live-trapped, others which were found dead, others which were shot and examined at the checking station, and still others which were autopsied rather than fluoroscoped. Weight and longevity of ducks with ingested shot and those with no shot differed little, or not at all.--From auth. summ.

Jensen, Wayne I., and Jack P. Allen. (P. O. Box 603, Brigham City, Utah.) A POSSIBLE RELATIONSHIP BETWEEN AQUATIC INVERTEBRATES AND AVIAN BOTULISM. Trans. 25th N. A. Wildl. Conf. p. 171-180, 2 figs. 1960. WR 101: 54

A five year study (1955-9) was conducted at the Bear River Migratory Bird Refuge to test the hypothesis that aquatic invertebrate carcasses are important among the media utilized by Clostridium botulinum type C for growth and elaboration of toxin in avian botulism epizootic areas. Numbers of plankton and nekton species fluctuated within wide limits from week to week each year with no apparent relationship to the disease in waterfowl. On the other hand, the total numbers of macro-bottom fauna reached a peak followed by a sharp decline just prior to the beginning of botulism outbreaks in three of the five summers. In the other two summers, macro-bottom fauna numbers remained at a relatively low and constant level, and botulism losses were unusually mild in the study areas. While no conclusions are drawn from these data, they are considered to be adequate justification for continuation of the study.--From abst. by W. I. Jensen.

Linkola, P. UBER DAS GESCHLECHTSVERHÄLTNIS BEI DEN ENTENVÖGELN. [THE SEX RATIO IN DUCKS.] Ornis Fennica 37(1/2): 36-45. 1960. [From Biol. Abst. 35 (24), 1960.] WR 101: 54

[In German.] The sex ratio of ducks in Finnland is given by a quantitative survey of previously published and original data.--D. E. Davis.

Llewellyn, Leonard M., and Clark G. Webster. (Webster: Remington Farms, Rt. 2, Chestertown, Md.) RACCOON PREDATION ON WATERFOWL. Trans. 25th N. A. Wildl. Conf. p. 180-185. 1960. WR 101: 55

Raccoon damage to waterfowl nests has increased as the raccoon population has increased. Examples are given of raccoon damage to nests of Canada geese, ground-nesting ducks, and wood ducks. Damage control efforts are summarized. Poisoned eggs have been used to prevent damage to Canada geese. Preliminary trials have been made of artificial cylinders for prevention of damage to mallards. Wood ducks nesting in artificial structures have been protected by reducing the size of the box opening, by modifying the entrance by addition of a tunnel, by placing guards on the mounting posts, and by using other special methods for mounting the boxes. All methods are not uniformly successful in all areas. Direct control of raccoons by poison is discussed.--Leonard M. Llewellyn.

Lorenz, Konrad, and Wolfgang von de Wall. DIE AUSDRUCKSBEWEGUNGEN DER SICHELENTE, ANAS FALCATA L. [INTENTION MOVEMENTS OF THE FALCATED TEAL.] J. Ornith. 101(1-2): 50-60. 1960. WR 101: 55

The movements of the falcated duck are described and compared with those of 3 species of teal. The similarity supports morphological evidence that all 4 are closely related. The flocking call is an intention behavior.--David E. Davis.

Mann, Grady E., and E. Robert Panzner. (638 W. Laurel, Fergus Falls, Minn.) PRAIRIE POTHOLES / A VITAL WATERFOWL RESOURCE. Am. For. 66(11): 24-27, 49-50, illus. Nov. 1960. WR 101: 55

The problem of drainage in the prairie pothole region of Canada, the Dakotas, and Minnesota is reviewed. Suggested approaches to help the conservation movement are: review of out-dated drainage regulations, local and federal legislation to halt drainage in pothole region, support of duck stamp sales, and Ducks Unlimited projects, and support of wetlands as a watershed treatment. --Mary F. Myers.

Milonski, Mike. THE SIGNIFICANCE OF FARMLAND FOR WATERFOWL NESTING AND TECHNIQUES FOR REDUCING LOSSES DUE TO AGRICULTURAL PRACTICES. M.A. thesis, U. Mo. 81 p. 1958. WR 101: 55

[See WR 95: 88 for a review of a paper with the same title based on this study.]--Courtesy/ Thomas S. Baskett.

Sladen, William J. L. (Johns Hopkins U., Baltimore, Md.) THE FLORA OF A BREEDING AREA OF PINK-FOOTED GEESE IN CENTRAL ICELAND. Proc. Linnean Soc. London, 171 Session, 1958-9, pt. 1. p. 30-52, 1 fig. June 1960. WR 101: 55

The habitat of the largest known breeding colony of Anser brachyrhynchus is described. The distribution and frequencies of 155 forms of vascular plants, 37 mosses, and 8 liverworts are given. The plant communities with which the geese are most associated are analyzed.--From summ.

Taverner, J. H. THE SPREAD OF THE EIDER IN GREAT BRITAIN. Brit. Birds 52 (8): 245-258. Aug. 1959. WR 101: 55

Since the 1930's breeding eiders have increased in Great Britain. Since 1945 breeding and wintering ranges have extended remarkably.--Mary F. Myers.

Walsh, Roy E. GUNNING THE CHESAPEAKE / DUCK AND GOOSE SHOOTING ON THE EASTERN SHORE. Tidewater Publishers (Cambridge, Md.). iii + 118 p., illus. 1960. $5.75. WR 101: 55

A "how-to" book designed to tell the amateur or seasoned gunner how, when, and where waterfowl are taken on the Eastern Shore area of the Chesapeake Bay. Habits and identification, hunting grounds, decoys, blinds and boats, dogs and guns, decoy rigs and how to set them for different species and different winds, are described and illustrated. The combination of informative sketches and photographs should make this book appealing to the general sportsman. As an aid to waterfowl identification, Angus H. Shortt's illustrations of waterfowl are reproduced in the appendix.

Wong, Herbert W. DUCKS, GEESE, AND SWANS. Lane Book Co. (Menlo Park, Calif.). 65 p., illus. 1960. $2.95. WR 101: 56

A well-illustrated introduction to waterfowl designed primarily for younger readers living in the Western states. The material has been checked for scientific accuracy by Dr. A. Starker Leopold and Dr. Matthew E. Vessel. The characteristics, general behavior, food habits, and migration of waterfowl are discussed informally. The descriptions of 50 common ducks, geese, and swans of western N. A. are given in sufficient detail to be informative and at the same time are brief enough to hold the interest of the younger reader. Other sections include: waterfowl mortality, waterfowl protection, and refuges.

Yocum, Charles F., and Mathew Keller. (Humboldt State Coll., Arcata, Calif.) CORRELATION OF FOOD HABITS AND ABUNDANCE OF WATERFOWL, HUMBOLDT BAY, CALIFORNIA. Calif. Fish & Game 47(1): 41-53. Jan. 1961. WR 101: 56

"In order to determine the relative importance of various food items to the total waterfowl population of the Humboldt Bay area, food habits and abundance of each species of waterfowl were correlated. Eelgrass, unidentified vegetation, clams, barley, clover, creeping spike rush, prairie bulrush, and widgeon grass, in order of importance, accounted for 94.6 percent of the volume indices."--From summ.

CRANES, RAILS, SHOREBIRDS

Abramson, Ira Joel. (1070 South Shore Drive, Miami Beach, Fla.) CATTLE EGRETS ON THE DRY TORTUGAS. Auk 77(4): 475. Oct. 1960. WR 101: 56

Three observations made in 1958 and 1960 suggest a hypothetical route by which the cattle egret may have invaded the U. S. and provide strongly suggestive information in regard to the migratory activity of the species.

Andrew, D. G. MIGRATIONS OF THE OYSTERCATCHER. Brit. Birds 52(7): 216-220. July 1959. WR 101: 56

"The evidence at present available does not support the suggestion that immature Oystercatchers migrate further than adults." [See Buxton below.]

Bateson, P. P. G., and R. C. Plowright. THE BREEDING BIOLOGY OF THE IVORY GULL IN SPITSBERGEN. Brit. Birds 52(4): 105-114. Apr. 1959. WR 101: 56

Ivory gulls were observed nesting on a steep cliff in association with kittiwakes. Nests, incubation, clutch size, food, brooding by adults, and predators are discussed.--Mary F. Myers.

Bauer, Kurt, Otto Koenig, and Ilse Makatsch. STUDIES OF LESS FAMILIAR BIRDS / 108. LITTLE CRAKE. Brit. Birds 53(11): 518-524, 4 pls. Nov. 1960. WR 101: 56

Information is given on the habitat type, identification and voice of the little crake.--Mary F. Myers.

Burton, P. J. K., and M. H. Thurston. OBSERVATIONS ON ARCTIC TERNS IN SPITSBERGEN. Brit. Birds 52(5): 149-161, 3 figs. May 1959. WR 101: 56

Observations made in 1957 on a colony of arctic terns showed a marked diurnal rhythm. Glaucous gulls were the most important predator. Terns showed close association with eiders, long-tailed ducks, and phalaropes. Feeding behavior is discussed.--Mary F. Myers.

Buxton, E. J. M. MIGRATIONS OF THE OYSTERCATCHER IN THE AREA OF BRITAIN: RESULTS OF RINGING. Brit. Birds 50(12): 519-524, illus. Dec. 1957. WR 101: 56

This paper presents conclusions drawn about migration of oystercatchers based on recoveries of ringed birds. Birds which bred in Iceland and the Faeroes are frequent visitors to the British Isles. Birds from continental Europe are infrequent visitors. The young probably disperse as soon as they can fly and immature birds seem to travel farther from their birth-place than adults. They begin returning to the breeding area in Feb. of their 3d year and tend to remain there for the rest of their lives.--Mary F. Myers.

Drinnan, R. E. (Fisheries Res. Sta., Conway, Caernarvonshire, England.) OBSERVATIONS ON THE FEEDING OF THE OYSTERCATCHER IN CAPTIVITY. Brit. Birds 51(4): 139-149, 2 figs. Apr. 1958. WR 101: 57

Captive oystercatchers ate 230-260 cc of mollusk flesh per day while maintaining constant weight. After weight loss, intake increased to 359 cc per day. Intake in the dark was approximately half that in the light. Comparison with birds shot in the field indicates a higher intake for free birds, but a similar night:day ratio probably due to the differing activities of the two groups of birds.--Mary F. Myers.

Ferguson-Lees, I. J. STUDIES OF LESS FAMILIAR BIRDS / 102. LAMMERGEIER. Brit. Birds 53(1): 25-29, 8 pls. Jan. 1960. WR 101: 57

An account of the lammergeier based mainly on observations during 1959. Young and adults were observed at the nest and are described. Plates show close-ups of young and adult birds.--Mary F. Myers.

Kobayashi, K. (c/o Yamashina Inst. Ornith., 49 Nampeidai-machi, Shibuya-ku, Tokyo, Japan.) NOTES ON OSAKA BAY WADERS. Kobe, Japan. 1-115 p. 1959. [From Auk 77(3), 1960.] WR 101: 57

"A seven-year study of 39 species of shorebirds at a mudflat at Osaka, Japan. Spring migration lasts about 50 days; autumn migration about 90 days. In spring the peak in number of species comes earlier than the peak in numbers of individuals; in autumn the opposite is true. Although there is a good English summary, not only the text but also the legends to the tables and graphs are exclusively in Japanese." [Independently published, bearing no address or source except "Kobe, Japan."]--E.E.

Nisbet, I. C. T. WADER MIGRATION IN NORTH AMERICA AND ITS RELATION TO TRANSATLANTIC CROSSINGS. Brit. Birds 52(7): 205-215. July 1959. WR 101: 57

"The relative frequency of occurrence of various American waders in Great Britain is compared with the available information on their migration patterns and abundance in North America. Some species which have occurred in Britain are rare on the American coast, while there are especially few British records of the species which are most abundant there. Species of inland habitat are relatively more frequent than those of the coast; long-distance migrants are more frequent than short-distance migrants; and species from western arctic America are much more frequent than species from eastern arctic America. Transatlantic vagrancy occurs mainly in those species in which a part of the population has an extensive west-to-east movement within North America."--From auth. summ.

Walkinshaw, Lawrence H. (819 North Ave., Battle Creek, Mich.) MIGRATION OF THE SANDHILL CRANE EAST OF THE MISSISSIPPI RIVER. Wilson Bul. 72(4): 358-384, 4 figs. Dec. 1960. WR 101: 57

Since 1910 apparently the majority of sandhill cranes have migrated from n. Ont., n. Mich., and cent. Wis. into n. Ind. From here and from s. Mich., cranes proceed toward Ga. and into Fla. The regular wintering area is usually cent. or s. Fla.--From conclusion.

OTHER BIRDS

Brown, L. H. THE AFRICAN FISH EAGLE HALIAETUS VOCIFER ESPECIALLY IN THE NGORONGORO CRATER. Ibis 102(2): 285-297, 1 fig. Apr. 1960. WR 101: 57

A life history sketch of the African fish eagle covering habits, habitats, food habits, and breeding seasons and cycles.--Mary F. Myers.

Carrick, R., K. Keith, and A. M. Gwynn. (Wildl. Sect., C.S.I.R.O., Canberra, Australia.) FACT AND FICTION ON THE BREEDING OF THE WANDERING ALBATROSS. Nature 188(4745): 112-114, 2 figs. 8 Oct. 1960. WR 101: 57

A review paper which discredits the starvation theory and supports the observation that wandering albatross pairs breed in alternate years.

Davis, T. A. W. KESTREL PELLETS AT A WINTER ROOST. Brit. Birds 53(7): 281-284. July 1960. WR 101: 58

"The analysis of 113 pellets of kestrels...showed Field Voles...to be the commonest prey. Bank Voles...and shrews...were taken frequently, birds occasionally, and...Beetles...regularly in early winter.... In late winter, when beetles become scarce, many pellets contained much earth."--From auth. summ.

Kinsky, F. C. THE NORTHERN BLUE PENGUIN (EUDYPTULA MINOR NOVAEHOLLANDIAE) IN WELLINGTON HARBOR. Proc. New Zealand Ecol. Soc. 6: 12-15. 1958 [1959]. [From Biol. Abst. 35(22), 1960.] WR 101: 58

Michell, E. B. THE ART AND PRACTICE OF HAWKING. Charles T. Branford Co., Boston 59, Mass. xii + 291 p., illus. 1900 (reprinted 1959). $6.00. WR 101: 58

This is the best of all books on falconry written in the last 100 years and both experienced and potential falconers are fortunate to be able to obtain it at this price. The detail and quality of this book makes it the top book on falconry which is easily available. The beginner should remember that much of the hawking described here would be illegal in most of our states today. As to be expected, the section on disease is outdated and most of the medicines referred to are unknown or almost impossible to obtain. The Lodge paintings suffered in this reprint. They are poorly reproduced and not nearly as clear as in the original version. Nevertheless, this was written by a talented falconer with a wealth of information. Anyone interested in the subject cannot go wrong on this book.--Malcolm G. Edwards.

Pennycuick, C. J., and D. Webbe. OBSERVATIONS ON THE FULMAR IN SPITSBERGEN. Brit. Birds 52(10-11): 321-332, 1 fig., 6 pls. Oct.-Nov. 1959. WR 101: 58

Calls associated with various activities, movements used in control of gliding flight, and color phases are described. Adults without young apparently left the colony during the observation period.

Pyman, G. A., secretary. (30 St. Leonard's Ave., Bedford, England.) RECORDS OF RARE BIRDS. Brit. Birds 52(8): 241-244. Aug. 1959. WR 101: 58

An editorial with a list of more than 200 birds currently considered to be rare in the British Isles.--Mary F. Myers.

Rand, R. W. THE BIOLOGY OF GUANO-PRODUCING SEA-BIRDS. THE DISTRIBUTION, ABUNDANCE AND FEEDING HABITS OF THE CAPE PENGUIN, SPHENISCUS DEMERSUS, OFF THE SOUTH-WESTERN COAST OF THE CAPE PROVINCE. Union S. Africa Dept. Comm. and Indus. Div. Fish. Invest. Rep. 41. p. 5-28, illus., maps. 1960. [From Biol. Abst. 35(22), 1960.] WR 101: 58

Snow, Barbara. THE BREEDING BIOLOGY OF THE SHAG PHALACROCORAX ARISTOTELIS ON THE ISLAND OF LUNDY, BRISTOL CHANNEL. Ibis 102(4): 554-575, 2 figs. Oct. 1960. WR 101: 58

An account of the various aspects of the breeding biology of the shag. Subjects commented on are: population statistics, breeding season, nest-sites and nests, egg-laying, replacement clutches, clutch-size, egg size and weight, fledging success, weight of young, period of dependence on parents, and variation in breeding success.--Mary F. Myers.

Thomson, A. Landsborough. THE MIGRATIONS OF BRITISH FALCONS (FALCONIDAE) AS SHOWN BY RINGING RESULTS. Brit. Birds 51(5): 179-188. May 1958. WR 101: 58

An analysis of recovery data of falcons banded in the British Isles and abroad. Species reported are hobby, peregrine, merlin, and kestrel. Recovery records are given for birds banded as nestlings and adults, for recoveries abroad of birds banded in Britain, and for British recoveries of birds banded abroad.--Mary F. Myers.

Westerskov, Kaj. (Wildl. Div., Dept. Internal Affairs, Wellington, New Zealand.) FIELD IDENTIFICATION AND SEX DETERMINATION OF THE ROYAL ALBATROSS. N. Z. Dept. Internal Affairs, Wildl. Publ. no. 67. 6 p. + 8 pls. 1960. [Reprinted from Notornis 9(1), 1960.] WR 101: 59

Successively, the wandering and the royal albatrosses are differentiated from the smaller black-backed albatrosses. The two subspecies of royal albatross are identified, and the sexual dimorphism of the southern royal albatross is noted. The ♂♂ of this form have more white on the wings than the ♀♀, they are larger, and have longer bills. The length of middle toenail in ♀♀ is less than 24 mm and in ♂♂ 24 mm or more.

REPTILES AND AMPHIBIANS

Anderson, Paul K. (Columbia U. Nevis Biol. Sta., Irvington-on-Hudson, N. Y.) ECOLOGY AND EVOLUTION IN ISLAND POPULATIONS OF SALAMANDERS IN THE SAN FRANCISCO BAY REGION. Ecol. Monog. 30(4): 359-385, 18 figs. Oct. 1960. WR 101: 59

Species of salamanders, island communities, origin of salamander populations, and ecological and morphological characteristics of the salamander populations on islands in the San Francisco Bay Region are discussed.

Barbour, Roger W. (U. Ky., Lexington.) A STUDY OF THE WORM SNAKE, CARPHOPHIS AMOENUS SAY, IN KENTUCKY. Trans. Ky. Acad. Sci. 21(1/2): 10-16. 1960. [From Biol. Abst. 35(21), 1960.] WR 101: 59

One hundred sixteen specimens were examined. Food consisted entirely of earthworms. Egglaying, in the middle of June, averaged 2.6 eggs per snake. The tails of females averaged 14.4% of the total length; those of males 19.1%. --From abst. by R. H. Weaver.

Blair, W. F. THE RUSTY LIZARD / A POPULATION STUDY. U. Texas Press, Austin. xiv + 185 p., 31 figs. 1960. $4.50. WR 101: 59

The Sceloporos olivaceous of a 10-acre tract of old river terrace near Austin, Texas were studied intensively from 1951 through 1956. Individuals were captured, marked by toe-clipping and with lacquered symbols, and released at the capture sites. The breeding population of the 10 acres varied from 178 to 250. On the average, 78.2% of the ♀♀ and 82.5% of the ♂♂ would have to be replaced annually to maintain the population level. The average home range of adult ♀♀ corresponded to a square about 56 feet on a side; ♂♂ 86 feet. Juveniles had smaller ranges than adults; when becoming adult, some enlarged their ranges on the same area, others moved to new areas. Other principal topics included: social behavior, habitat preferences of adults and juveniles, dispersal, sex ratios, productivity, enemies, incubation period, reproductive behavior, daily and seasonal activity patterns, growth, molting, tail damage and repair, body temperatures, sizes and weights.--L. F. Stickel.

Bragg, Arthur N. (U. Okla., Norman.) POPULATION FLUCTUATION IN THE AMPHIBIAN FAUNA OF CLEVELAND COUNTY, OKLAHOMA DURING THE PAST TWENTY-FIVE YEARS. Southwestern Nat. 5(3): 165-169. 1 Nov. 1960. WR 101: 59

Abstract: Fluctuation in numbers of Amphibia of some (but not of other) species in Central Oklahoma has been noted. Some declines have been correlated with human activity, whereas others have not. Two species of Pseudacris tend to replace one another according as periods of light and heavy rainfall occur locally. Some species have essentially maintained their numbers regardless of environmental fluctuations.

Carpenter, Charles C. (U. Okla., Norman.) REPRODUCTION IN OKLAHOMA SCELOPORUS AND CNEMIDOPHORUS. Herpetologica 16(3): 175-182, 5 figs. 23 Sept. 1960. WR 101: 59

Information concerning the reproductive habits of these lizards was collected during an intensive 5-year study of the comparative ecology and behavior of Sceloporus undulatus and Cnemidophorus sexlineatus. Sceloporus when compared with Cnemidophorus, lays more eggs per clutch, has a longer laying season, and a shorter incubation period. Thus, Sceloporus has the greatest breeding potential. A method of hatching reptile eggs is described.

Cook, Sherburne F., Jr. (U. Calif., Mus. Vert. Zool., Berkeley.) ON THE OCCURRENCE AND LIFE HISTORY OF CONTIA TENUIS. Herpetologica 16(3): 163-173, 3 figs. 23 Sept. 1960. WR 101: 60

The sharp-tailed snake "is not the rare species previously supposed but perhaps locally one of the more common species of the West Coast. Its period of activity and temperature tolerances may vary significantly from most other species within its range. Furthermore, the range, ecological distribution, and behavior of this snake appear to be closely correlated with a highly utilized food resource--an introduced genus of slug."

Gordon, Charles, and Wade Fox. (Benjamin Franklin High School, New Orleans, La.) THE NORMAL DAILY RHYTHM OF COLOR CHANGES IN THE LIZARD, ANOLIS CAROLINENSIS, WHEN EXPOSED TO CONTRASTING BACKGROUND COLOR. Herpetologica 16(4): 233-235, 1 fig. 30 Dec. 1960. WR 101: 60

"Temperature plays a major role in control of skin color of these animals. Within certain temperature ranges there appears to be a marked diurnal rhythm of brown during the day and green during the night. Further, at moderate temperatures the preference for brown during the day is significantly altered by background color."

Gosner, Kenneth L. (Newark Mus., 43 Washington St., Newark, N. J.) A SIMPLIFIED TABLE FOR STAGING ANURAN EMBRYOS AND LARVAE WITH NOTES ON IDENTIFICATION. Herpetologica 16(3): 183-190, 46 figs. on 3 pls. 23 Sept. 1960. WR 101: 60

The "table [chart] should prove adequate for staging developmental series of most North American pelobatids, bufonids, hylids and ranids, at least."

Gosner, Kenneth L., and Douglas A. Rossman. (Newark Mus., 43 Washington St., Newark, N. J.) EGGS AND LARVAL DEVELOPMENT OF THE TREEFROGS HYLA CRUCIFER AND HYLA OCULARIS. Herpetologica 16(4): 225-232, 1 fig. 30 Dec. 1960. WR 101: 60

Heatwole, Harold. (U. Mich., Ann Arbor.) BURROWING ABILITY AND BEHAVIORAL RESPONSES TO DESSICATION OF THE SALAMANDER, PLETHODON CINEREUS. Ecology 41(4): 661-668, 4 figs. Oct. 1960. WR 101: 60

Plethodon cinereus cannot burrow in sand from its natural habitat, but can burrow in humus containing solid objects or humus which has been loosened mechanically. "In sequence of occurrence, the behavioral responses to dessication by P. cinereus are (1) movement to more favorable sites, (2) burrowing if substrate is favorable, (3) coiling, and (4) wandering."--From summ.

Heatwole, Harold, and Lowell L. Getz. (U. Mich., Ann Arbor.) STUDIES ON THE AMPHIBIANS AND REPTILES OF MUD LAKE BOG IN SOUTHERN MICHIGAN. Jack-Pine Warbler 38(3): 107-112, 1 fig. Sept. 1960. WR 101: 60

Notes on the ecology, local distribution, and movements of the 10 species of amphibians and 12 forms of reptiles found on the 200-acre Mud Lake Research Area, and a discussion of interspecific competition between closely related forms.

Hoyt, Dale E. (Mus. Nat. Hist., U. Kans., Lawrence.) MATING BEHAVIOR AND EGGS OF THE PLAINS SPADEFOOT. Herpetologica 16(3): 199-201, 1 fig. 23 Sept. 1960. WR 101: 60

Johnson, Clifford. (U. Texas, Austin.) REPRODUCTIVE CYCLE IN FEMALES OF THE GREATER EARLESS LIZARD, HOLBROOKIA TEXANA. Copeia 1960(4): 297-300, 1 fig. 30 Dec. 1960. WR 101: 60

Klimstra, W. D., and Frances Newsome. (S. Ill. U., Carbondale.) SOME OBSERVATIONS ON THE FOOD COACTIONS OF THE COMMON BOX TURTLE, TERRAPENE C. CAROLINA. Ecology 41(4): 639-647, 6 figs. Oct. 1960. WR 101: 60

Examination of the contents of the digestive tracts of 117 specimens from s. Ill. yielded more than 130 specific kinds of food. The more important foods included: "unidentified plant materials, insects, seeds, gastropods, isopods and diplopods. The limited evidence of vertebrates probably indicated carrion feeding habits. Some seasonal variation in utilization was indicated...."--From summ.

Organ, James A. (U. Mich., Ann Arbor.) STUDIES ON THE LIFE HISTORY OF THE SALAMANDER, PLETHODON WELLERI. Copeia 1960(4): 287-297, 3 figs. 30 Dec. 1960. WR 101: 61

The egg mass, individual eggs, and nesting sites of Plethodon welleri are described in detail. The late embryos, hatching process, and recently hatched young are described and figured. The pattern of courtship is described in detail and compared to that of P. jordani metcalfi and P. glutinosus.

Shoop, C. Robert. (Tulane U., New Orleans, La.) THE BREEDING HABITS OF THE MOLE SALAMANDER, AMBYSTOMA TALPOIDEUM (HOLBROOK), IN SOUTHEASTERN LOUISIANA. Tulane Studies in Zool. 8(3): 65-82, 10 figs. 2 Dec. 1960. WR 101: 61

Detailed study carried on during 1957-60. Mole salamanders breed in se. La. during the winter for a period of 6-15 days. The breeding migration is correlated with the incidence of low temperatures and rains. "Males apparently remain in the breeding pond throughout the period in contrast to the females which depart from the pond soon after oviposition; therefore, noncontinuous sampling may give an erroneous indication of the sex ratio of the breeding population." Comparisons between the courtship patterns of the mole salamander and other spp. of Ambystoma are made.--From summ.

Storm, Robert M. (Oreg. State Coll., Corvallis.) NOTES ON THE BREEDING BIOLOGY OF THE RED-LEGGED FROG (RANA AURORA AURORA). Herpetologica 16(4): 251-259, 1 fig. 30 Dec. 1960. WR 101: 61

The red-legged frog in the Willamette Valley (Oreg.) begins breeding activities soon after 1 Jan. This activity is initiated by moderate to heavy rains with temperatures of 50°F or above. Hatching time extends from 6-7 weeks. Various stages of the tadpole are described. Sexual maturity may be attained in 2 years.--From summ.

Tinkle, Donald W. (Texas Tech. Coll., Lubbock.) GEOGRAPHIC VARIATION IN REPRODUCTION, SIZE, SEX RATIO AND MATURITY OF STERNOTHAERUS ODORATA (TESTUDINATA: CHELYDRIDAE). Ecology 41(1): 68-76. Jan. 1961. WR 101: 61

Northern musk turtles have a larger clutch size, larger body size, and higher reproductive potential than southern musk turtles. Both southern ♂♂ and ♀♀ reach sexual maturity at a smaller size than do northern musk turtles. The sex ratios of all turtles examined in which sex could be determined was skewed in favor of ♀♀, but not significantly.--From summ.

Underhill, James C. (U. Minnesota, Minneapolis.) BREEDING AND GROWTH IN WOODHOUSE'S TOAD. Herpetologica 16(4): 237-242, 1 fig. 30 Dec. 1960. WR 101: 61

"The growth rate of South Dakota toads is only approximately half that reported for toads from Oklahoma."--From summ.

Webb, Robert G. (U. Kans., Lawrence.) OBSERVATIONS ON THE LIFE HISTORIES OF TURTLES (GENUS PSEUDOMYS AND GRAPTEMYS) IN LAKE TEXOMA, OKLAHOMA. Am. Midl. Nat. 65(1): 193-214, 9 figs. Jan. 1961. WR 101: 61

Aspects of the life histories of Pseudomys scripta elegans and Graptemys pseudogeographica ouachitensis were studied. Males of Pseudomys are sexually mature at plastron length of 9.0 to 10.0 cm; ♀♀ at 17.4 to 19.3. The realized annual reproductive capacity of a ♀ Pseudomys is estimated to be 26.4 eggs (3 clutches; 8.8 eggs per clutch). Some ♂♂ become sexually mature in their third year; ♀♀ in their fourth. Graptemys ♂♂ are sexually mature at a plastron length of 7.0 cm; ♀♀ at 15.0 cm. Each Graptemys ♀ lays about 19.5 eggs per year (3 clutches; 6.5 eggs per clutch).--From auth. abst.

AUTHOR INDEX

	Page
Abramson, Ira Joel	56
Adomaitis, Vyto A.	5
Agee, C. Phillip	47,49
Alba, Aurelio Malaga	17
Alexander, Harold E.	2,43
Allen, Jack P.	54
Allen, R. W.	28
Amman, Gene D.	42
Anderson, Paul K.	59
Andrew, D. G.	50,56
Andrzejewski, R.	16
Arend, Philip H.	11
Arizona	11
Armstrong, Edward A.	33
Arner, Dale Howard	14
Artimo, Atso	26
Ash, J. S.	42,46
Atkinson-Willes, G. L.	52
Avery, Gene	8
Babero, Bert B.	32
Backhouse, Kenneth	30
Baerends, G. P.	33
Baldwin, Paul H.	42
Ball, Walter S.	10
Banko, Winston E.	52
Barbour, Roger W.	59
Barnes, Ruth M.	30
Barry, Michael	33
Bartlett, I. H.	29
Baskett, Thomas S.	52
Bateson, P. P. G.	56
Bauer, Kurt	56
Bergman, G.	33
Berntsen, Carl M.	14
Betts, Monica M.	33
Bevan, E. G.	49
Bezubik, B.	50
Biagi F., Francisco	16
Blackith, R. E.	7
Blair, W. F.	59
Boase, Henry	52
Bond, Henry E.	23
Bourne, W. R. P.	34
Bowden, Kenneth L.	13
Boyd, Hugh	52,53
Boyd, J. Morton	40,42
Boyer, G. F.	53
Bragg, Arthur N.	59
Braul, V. I.	23
Brewer, Richard	3
Brown, L. H.	57
Buchheister, Carl W.	43
Buechner, Helmut K.	8
Bull, P. C.	19
Burgdorfer, Willy	11
Burton, P. J. K.	56
Buss, Irven O.	47
Butterworth, Bernard Bert	22
Buttery, Robert F.	13
Buttiker, W.	34
Buxton, E. J. M.	56
Byrnes, William R.	13
Caballero y C., Eduardo	17
Cain, Stanley A.	10
Calaby, J. H.	32
Caldwell, Larry Derl	16
Campbell, Robert A.	13
Carpenter, Charles C.	59
Carrick, R.	57
Carter, Jack Lee	4
Casteel, David A.	20
Chambers, Glenn D.	51
Chapman, D. G.	7
Chew, Robert M.	18
Chisholm, A. H.	34
Chittleborough, R. G.	30
Christian, John J.	25,27
Cockrill, W. Ross	30
Cohen, A. Clifford, Jr.	7
Colburn, W. Lee	2
Conf. of Biological Editors	9
Connor, Paul F.	15
Cooch, F. G.	53
Cook, Sherburne F., Jr.	60
Coombs, C. J. F.	34
Cormack, Robert G. H.	12
Costin, A. B.	19
Coulson, J. C.	34
Cousineau, J. G.	17
Cowan, I. McT.	25
Craighead, Frank C., Jr.	26
Craighead, John J.	26
Cramp, S.	34
Crawford, John E.	50
Crispens, Charles G., Jr.	47
Crook, John Hurrell	34
Csaba, József	43
Currie, Pat O.	9
Currier, A.	25
Czarnecki, Z.	24
Dalke, Paul D.	50
Darling, F. Fraser	9
Davis, David E.	27
Davis, John	35
Davis, Richard B.	19
Davis, T. A. W.	58
Dawbin, W. H.	30
de Fremery, R. F.	13
Dehnel, A.	27
de la Torre, Luis	23
Delvingt, W.	43
DeWitt, James B.	5
Diem, Kenneth L.	53
Dietrich, Joseph A.	5
Dodds, Donald Gilbert	20,28
Donaldson, John C.	30
Doutt, J. Kenneth	30
Drinnan, R. E.	57
Drummond, Roger O.	6
Duebbert, Harold F.	53
Eckert, Richard E.	9
Ehrenreich, John H.	13
Eikleberry, Robert W.	2
Eklund, Carl M.	11
Ellis, Derek V.	4
Elzinga, Richard John	22

Page

Emond, G. 5
Erickson, Donald W. 31
Evans, James 53
Eygenraam, J. A. 28
Farner, Donald S. 40
Favour, Paul G., Jr. 31
Feinleib, Manning 7
Ferguson-Lees, I. J. 33,41,53,57
Findell, Virgil E. 4
Finnis, R. G. 44
Floyd, Jim 11
Flyger, Vagn 27
Foley, Donald D. 53
Forrester, Donald J. 28
Fox, Wade 60
Frankel, Arthur I. 51
Funderburg, John B., Jr. 16
Gallagher, M. D. 40
Garkavi, B. L. 29
Gemmell, M. A. 6
Gerberg, Eugene J. 5
Getz, Lowell L. 18,22,60
Gibb, John A. 42
Gilbert, Douglas L. 9
Giles, Lester A., Jr. 6
Gilmore, R. E. 28
Giltz, Maurice L. 44
Glasgow, Leslie 54
Goodacre, M. J. 35
Goodrum, Phil D. 48
Gordon, Charles 60
Gorodedetskii, V. F. 28
Gosner, Kenneth L. 60
Gätzsche, N. E. 44
Gower, J. C. 7
Greenhall, Arthur M. 18
Grizzell, Roy A., Jr. 9
Guiler, Eric R. 32
Grozdev, E. V. 48,50
Gwynn, A. M. 57
Hairston, Nelson G. 6
Hale, James B. 32
Hall, R. R. 17
Hamerstrom, Frances 50
Hamerstrom, Frederick 50
Hamilton, Rex 30
Hamilton, William J. III 54
Hammond, Merrill C. 54
Harmon, Bobby G. 54
Harmston, F. C. 22
Harper, W. G. 35
Hart, George 13
Harthoorn, A. M. 8
Haugen, Arnold O. 30
Hay, Keith G. 10
Heatwole, Harold 60
Hell, Pavol 20
Henningsen, Axel M. 35
Henderson, F. Robert 26
Herreid, Clyde F. II 19
Hewson, Raymond 35
Hinde, R. A. 35
Hoerning, B. 6
Hoffmann, L. 5
Hoffmeister, Donald F. 23

Page

Holgersen, Holger 40
Hollom, P. A. D. 40,41
Holten, Jack W. 20
Horn, Arthur G. 4
Hornocker, Maurice 26
Hoyt, Dale E. 60
Hsia, S. P. 12
Hsia, W. P. 24
Hungerford, Charles R. 48
Hunt, George S. 54
Igolkin, N. I. 17
Ingles, Lloyd G. 18
Irving, Frank Dunham 10
Ivey, William D. 48
Jackson, J. Edward 7
Jansson, Karl-Erik 35
Jenö, Tomasz 36
Jensen, Wayne I. 54
Johnson, Clifford 60
Johnson, Harald Norlin 46
Johnson, Morris D. 25
Jolly, G. F. 39
Jones, Dale A. 28
Kadenatsii, A. N. 29
Kaplin, A. A. 26
Kartman, Leo 20
Kasimov, G. B. 47
Keith, K. 57
Keller, Mathew 56
Kessel, Brina 40
Kinsinger, Floyd E. 9
Kinsky, F. C. 58
Kirkpatrick, Ralph D. 48
Kitts, W. D. 25
Klein, Harold G. 23
Klimstra, W. D. 60
Kobayashi, K. 57
Koenig, Otto 56
Krott, Peter 27
Krutikov, G. 29
Krzanowski, Adam 18
Kubik, Jerzy 23
Kurashvili, B. E. 47
Kurbatova, M. 29
Lack, David 35,36
Lange, Kenneth I. 16
Laws, Richard M. 31
Layton, J. M. 30
Lebedeva, L. S. 29
Lee, T. C. 24
Leighty, Ralph G. 2
Lems, Kornelius 4
Leslie, P. H. 7
Linder, Raymond L. 49
Lindzey, James S. 44
Linkola, P. 54
Livingston, John 6
Llewellyn, Leonard M. 55
Lloyd, Monte 7
Lock, John A. 8
Lockie, J. D. 37
Loginov, F. 29
Lord, Rexford D., Jr. 15,20
Lorenz, Konrad 55
Lostetter, Clinton H. 44

	Page
Lyon, David L.	48,49
Mackerras, M. J.	17
MacLennan, J. M.	26
MacMullan, Ralph Austin	49
Maher, William J.	31
Makatsch, Ilse	56
Mann, Grady E.	55
Manning, T. H.	29
Mansfield, A. W.	31
Manville, Richard H.	31
Marchant, S.	37
Marsden, Halsey	48
Marshall, A. J.	37
Marshall, I. D.	21
Martinson, R. Kahler	21
Matthews, Earle D.	2
Matthews, G. V. T.	52
McCabe, Robert A.	32
McCann, Lester J.	37
McCartin, Leontia	37,45
McDonough, James J.	21
McGinnies, William J.	12
McKiel, J. A.	17
McKinley, Daniel	10,29
McLaren, I. A.	31
McLean, Ivor	37
McNally, J.	23
Medin, Dean E.	3,12
Meester, Deur J.	16
Menzie, Calvin M.	5
Michell, E. B.	58
Miller, A. W.	11
Miller, Richard S.	23
Milonski, Mike	55
Milstead, William W.	6
Milton, O.	10
Mitchell, George J.	12
Mitchell, Robert T.	45
Moore, D. M.	19
Moore, Joseph Curtis	31
Moreau, R. E.	32
Mountford, M. D.	7
Murphy, Ralph S.	2
Murton, R. K.	51
Mustard, Eldie W., Jr.	30
Myrberget, Svein	41
Naaktgeboren, C.	31
Natl. Park Service	2
Ness, A. O.	2
Newsome, Frances	60
Newton, Ian	38
Nicholson, E. M.	41
Nisbet, I. C. T.	32,57
Norris, C. A.	42
Novikova, V. N.	17
Nunns, Frederick K.	3
O'Farrell, Thomas P.	21
Office of Information, US F&WS	3
Organ, James A.	61
Ostakhov, S. M.	23
Pachares, James	7
Padgett, Carol Smith	48
Panzner, E. Robert	55
Parker, Lansing A.	45
Partridge, William H.	41
Passburg, Rolf E.	41
Peevy, Fred A.	14
Pennycuick, C. J.	58
Petrov, A. M.	25
Petrusewicz, Kazimierz	16,25
Pettet, A.	34
Pfeifer, Ray E.	4
Pielowski, Z.	38
Pirtle, E. C.	30
Plowright, R. C.	56
Pomortseva, A.	29
Porter, H. C.	3
Poulding, R. H.	47
Poznanin, L. P.	45
Prasad, H.	26
Prokopič, J.	19
Pruitt, William O., Jr.	29
Pyman, G. A.	32,33,58
Pyrah, Duane B.	50
Quay, Thomas L.	16
Rand, R. W.	58
Raun, Gerald G.	16
Regnery, David C.	21
Reichel, William L.	5
Reid, Vincent H.	48
Richards, T. J.	38
Rico, C. M.	47
Rieger, Samuel	3
Ripley, Thomas H.	13,48
Ristic, Miodrag	30
Ritchie, J. C.	4
Robson, D. S.	7
Roper, G. D.	45
Rossman, Douglas A.	60
Royama, Tomoo	38
Ryabov, V. F.	38
Sadikov, I. A.	25
Sagaidak, L. P.	17
Sanders, Dupree	3
Sanderson, Glen C.	27
Schaller, George B.	40
Schlatterer, Edward	50
Scott, Peter	53
Seel, David C.	38
Senger, Clyde M.	29
Sharrock, J. T. R.	34
Shaw, T. H.	24
Shoop, C. Robert	61
Short, Henry L.	19
Sidorowicz, Jerzy	24
Simmons, K. E. L.	39
Skellam, J. G.	7
Skuratowicz, W.	24
Sladen, William J. L.	55
Slijper, E. J.	31
Slobodkin, Lawrence B.	6
Sluiter, J. W.	19
Smith, Dixie R.	29
Smith, Edward Ray	16
Smith, Frederick E.	6
Smith, K. D.	39
Smith, M. Q.	41
Snow, Barbara	58
Snyder, Robert L.	25
Southern, H. N.	46

Page

..... 41
..... 14
..... 58
..... 25
.. 16,25
..... 34
..... 4
..... 38
..... 30
..... 56
..... 29
..... 3
..... 47
..... 45
..... 26
..... 19
..... 29
32,33,58
..... 50
..... 16
..... 58
..... 16
..... 21
..... 5
..... 48
..... 38
..... 47
..... 3
.. 13,48
..... 30
..... 4
..... 7
..... 45
..... 60
..... 38
..... 38
..... 25
..... 17
..... 3
..... 27
..... 40
..... 50
..... 53
..... 38
..... 29
..... 34
..... 24
..... 61
..... 19
..... 24
..... 39
..... 7
..... 24
..... 55
..... 31
..... 6
..... 19
..... 29
..... 16
..... 6
..... 39
..... 41
..... 58
..... 25
..... 46

Page

Spencer, Robert 39
Stanton, Don C. 50
Stein, Georg H. W. 24
Sternitzke, Herbert S. 4
Stirrett, G. M. 53
Stoddard, Charles H. 12
Stokes, Allen W. 39
Storm, Robert M. 61
Stijj, Jozsef 46
Tanaka, Ryo 17
Twerner, J. H. 55
Taylor, David C. 3
Terres, John K. 41
Tearle, Ronald J. P. 46
Thomas, Carl H. 54
Thompson, Seton H. 31
Thomson, A. Landsborough 39,58
Thomson, Ivan 15
Thorpe, W. H. 39
Thurston, M. H. 56
Tierkel, E. S. 17
Tinkle, Donald W. 61
Toll, John E. 21
Tomlinson, Roy E. 52
Torii, T. 8
Trautman, Carl G. 49
Tubbs, Carl H. 4
Ulrich, R. 3
Underhill, James C. 61
Valverde, J. A. 5
Van Etten, Robert C. 14,15
van Utrecht, W. L. 31
Vertse, Albert 46
Vietinghoff-Riesch, Arnold Frhr. von 24

Page

Villa R., Bernardo 16,17
Vita, L. A. 47
von de Wall, Wolfgang 55
Walkinshaw, Lawrence H. 57
Walkowa, W. 16
Walsh, Roy E. 55
Ward, Ronald A. 23
Wasilewski, WacZaw 25
Watrach, A. M. 30
Watson, C. W. 51
Watt, Alex S. 21,22
Wayne, Philip 39
Webb, Robert G. 61
Webbe, D. 58
Webster, Clark G. 55
Wells, Oris V. 11
Westerskov, Kaj 59
West Virginia 11
Wetherbee, David Kenneth 49
White, E. 34
White, Harold E. 18
Whittaker, R. H. 4
Wiersema, P. 15
Wight, Howard M. 52
Willard, William K. 6
Williams, Francis J. 46
Williamson, Kenneth 33,37,40,42
Williard, John E. 3
Wilson, A. C. 40
Winterbottom, J. M. 41
Wong, Herbert W. 56
Woodgerd, Wesley 26
Wright, C. T. 22
Wynne-Edwards, V. C. 43
Yocum, Charles F. 47,56

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